REPORT

OF

PROCEEDINGS OF THE CENTRAL INDIGENOUS DRUGS COMMITTEE

OF

INDIA.

VOL. I.

From First Meeting on the 3rd January 1896 to the Meeting of 19th March 1901 at which the Proceedings of the Thirteenth Meeting were read and confirmed.



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REPORT

OF

CENTRAL INDIGENOUS DRUGS COMMITTEE.

PROCEEDINGS OF THE FIRST MEETING.

January 3rd, 1896.

The Indigenous Drugs Committee met at the Office of the Medical Depôt, Wellesley Place, at 4-30 P.M.

Present:

BRIGADE-SURGEON-LIEUTENANT-COLONEL G. KING, M.B., F.R.S., F.L.S., LL.D., C.I.E., *President.*

SURGEON-LIEUTENANT-COLONEL J. F. P. MCCONNELL, M.D., F.R.C.P.

SURGEON-LIEUTENANT-COLONEL C. J. WARDEN, M.D.

RAI BAHADUR KANNY LALL DEY, F.C.S., C.I.E.

GEORGE WATT, M.B., C.M., F.L.S., C.I.E.

The President explained that the meeting had been convened by him in consequence of the Resolution No. $\frac{24 \text{ Medical}}{793-809}$, dated the 31st October 1895, of the Government of India in the Home Department. He presumed that all the members of the Committee had been furnished with a copy of that Resolution and its enclosures, and accordingly that it would not perhaps be necessary for him to formally read it. The Resolution of the Government of India appointing the Committee, and which prescribes the scope and character of the enquiry, was therefore taken as read. *Conf. with App. I. & II. pp. 107-115.*

2. The President proposed and Dr. Warden seconded that Dr. Watt be appointed Honorary Secretary. *Appointment of Hon. Sec.*

3. ***Selection of Drugs.***—A discussion then ensued as to the meaning to be attached to the words of the Resolution "drugs of known therapeutic value." The President regarded that expression as restricting the enquiry to the recommendation of better preparations of indigenous drugs, the properties of which were already well known. Dr. Watt thought that the words might equally apply to drugs, that held a high position in the estimate of Native practitioners, though their exact therapeutic properties might never have been subjected to *Conf. with App., p. 108.*

B

careful investigation by Europeans. Dr. Warden agreed with the President, and it seemed to be the opinion of the majority of the members that, were the enquiry extended to all the drugs of reputed merit, there would be no finality to the enquiry.

Holarrhena. Conf. with pp. 8, 11; App., pp. 143, 145, 148, 159, 180.

4. *Officinal Drugs.*—It was suggested that attention might be directed to indigenous drugs that were already officinal in the Indian Pharmacopœia. Dr. McConnell mentioned *Kúrchí* bark (**Holarrhena antidysenterica**) by way of example, a drug which, he said, was already in use, though better preparations of it might be desirable. Dr. Watt pointed out that *Kúrchí* was one of the non-officinal drugs enumerated in the Indian Pharmacopœia as worthy of further enquiry. Dr. McConnell remarked that the prescriptions of the Native practitioners were as a rule so complex and contain so extensive an assemblage of drugs that it was next to impossible to fix the properties of any one of their ingredients. He was accordingly of opinion that convenient preparations made upon some definite standard might with advantage be subjected to actual therapeutic test. He thought, for example, that were it possible to arrange for some of the larger Hospitals, such as the Campbell Hospital, being supplied with good standard preparations of a selection of the better known indigenous drugs, we might soon possess much useful information as to their value or otherwise. Dr. McConnell then recommended that the enquiry might be conducted in relation to disease. For example, the better known indigenous drugs that may be used for ordinary fevers, for dysentery, etc. This was accepted by the Committee as a very desirable course.

Preparations on a Fixed Standard.

5. *Drugs in Relation to Disease.*—The President proposed and Dr. Warden seconded that a Sub-Committee be appointed consisting of Dr. Watt and Rai Bahadur Kanny Lall Dey to submit to next meeting lists of the drugs most worthy of enquiry as suitable for malarial fevers and bowel complaints.

Report. Conf. with p. 9, also App. III, pp. 116-127.

6. *Expert Opinion.*—Dr. Warden placed on the table a communication from Surgeon-Lieutenant-Colonel S. L. Dobie, Medical Storekeeper, Madras, and also a memorandum by Mr. D. Hooper, Quinologist, Madras; while Dr. McConnell presented a letter which he had received from Mr. Bolye Chandra Sen. In connection with this letter Dr. McConnell asked the meeting whether it might not be desirable to summon before them some of the better known Kábirájes and Hakims and to question them as to the properties of the drugs they use and the diseases for which they are employed. Rai Bahadur Kanny Lall Dey asked Dr. McConnell for the name of any Kábiráj whom Dr. McConnell had in his mind, and, on a name being mentioned, he remarked that he had no faith in the gentleman mentioned, but could bring to the meeting others who were held in higher esteem.

App. IV, pp. 128-129.

It was agreed that these communications or all similar papers that might be received should be circulated by the Honorary Secretary, so that they might be read by the members at their homes and considered at some subsequent meeting.

7. Dr. Warden announced that Surgeon-Major J. Parker, M.D., Medical Storekeeper, Bombay, was expected to visit Calcutta very shortly, he having been invited by Surgeon-General J. Cleghorn, M.D., to co-operate with the Committee. It was resolved that the next meeting should be specially convened when information of Dr. Parker's arrival had been obtained.

There being no other subject for discussion, the meeting was dissolved.

Proceedings of the first meeting read and confirmed.

G. KING, *President,*
Indigenous Drugs Central Committee.

The 9th January 1896.

PROCEEDINGS OF THE SECOND MEETING.

January 9th, 1896.

Medical Depôt

Present:

BRIGADE-SURGEON-LIEUTENANT-COLONEL G. KING, M.B., LL.D., F.R.S., C.I.E., *President.*
SURGEON-LIEUTENANT-COLONEL J. F. P. MCCONNELL, M.D., F.R.C.P.
SURGEON-LIEUTENANT-COLONEL C. J. WARDEN, M.D.
RAI BAHADUR KANNY LALL DEY, F.C.S., C.I.E.
GEORGE WATT, M.B., C.M., C.I.E., *Honorary Secretary.*

The Proceedings of last meeting were read and confirmed.

8. ***Drugs Procured Locally.***—The President explained that the meeting had been convened mainly with the object of meeting Surgeon-Major J. Parker, Medical Storekeeper, Bombay. He accordingly invited Dr. Parker to favour the Committee with information as to the extent to which the Bombay Stores were able to obtain in India the drugs they require. Dr. Parker submitted a list referred to two sections: (*a*) drugs and other necessaries procured by regular annual contract, and (*b*) those obtained by special indent. **Local Supply of Drugs.** *Conf. with App. V., pp. 130-133*

9. ***Kino.***—During the discussion that ensued it was recognized that Dr. Parker's Lists show that in the town of Bombay,—the great Indian emporium of drugs,—the Medical Stores are able to procure locally a very much larger proportion of the drugs and necessaries, issued by Government, than is possible with most other provinces. Dr. Parker explained that within the past few years he had been able to obtain, from the Forest Department, Bombay, *Kino* (the resin of **Pterocarpus Marsupium**) of a much purer quality (more soluble) than that which was formerly imported by the Stores. He had a large supply in stock for which he had paid 8 annas a pound. Dr. Watt remarked that the present commercial value of that resin in Europe was 16 shillings a pound. He also added that some time ago he had drawn the attention of the Inspector General of Forests to the desirability of his Department organising and controlling a regular trade in that article. The matter has thus for some short time been, so to speak, officially before the Inspector General. It was admitted that in *Kino* we had an excellent example of what might be done in organising a methodical and regular supply of certain drugs that are **Bombay—the Indian Drug Emporium. Kino.** *Conf. with App., pp. 120, 127, 132, 143, 270-79.* **Organisation of Supplies.**

actually procurable in India. Dr. Warden explained that the chief difficulty in that direction was to obtain a guarantee of regular supply. Occasionally a drug might be had locally, but should the supply fail and the Stores be suddenly compelled to procure the imported article in India they are made to pay, and naturally so, very exorbitant prices. Were it possible for the Forest Department or other agencies to undertake definite contracts, it is probable that a good many drugs that are at present imported would be purchased locally.

Definite Contracts.

Indian Pharmacopœia. *Conf. with App., p. 150.*

10. ***Indian Pharmacopœia.***—The President asked Dr. Parker if the Stores issued any special preparations more especially of indigenous drugs. Dr. Parker replied that they did not, that they followed very closely the lines indicated in the British Pharmacopœia. Dr. Watt asked whether they issued any of the preparations of indigenous drugs that had been made officinal in the Indian Pharmacopœia. Dr. Parker replied that in Bombay they never consulted the Indian Pharmacopœia, that unless the preparations to which allusion was made, occurred also in the British Pharmacopœia, they were certainly not issued from the Bombay Stores. Dr. McConnell emphasised this point by remarking, "You issue only the preparations of the British Pharmacopœia?" and to which Dr. Parker replied in the affirmative. The only departure made from the British Pharmacopœia, Dr. Parker continued, was in the fact that the yield of the extract obtained from Indian Opium, by thoroughly exhausting the drug, averages 72·7 per cent., while in Squire's Companion to the British Pharmacopœia (edition of 1894) the yield is stated as 50 per cent. He presumed that Turkey opium was used in the latter, whereas in Bombay they employed only Indian opium.

Opium. *Conf. with pp. 12, 14; App., pp. 124, 135, 147, 180.*

Conf. with App. VI., pp. 134-40.

11. ***Preparations Issued.***—Dr. Parker then remarked that he had addressed a letter to the Honorary Secretary on this and other points connected with the preparations issued from the stores. The letter he thought might be of interest to the Committee, but on his return to Bombay he would be happy to give the subject of the indigenous drugs further consideration and would, if the Committee desired, contribute a further series of notes. This offer was accepted by the Committee and Dr. Parker added that he would be most happy to institute in Bombay any enquiries the Committee desired. With this object he asked whether he could be furnished from time to time with copies of the proceedings of the Committee. This was at once accorded as being perhaps the most direct method of securing Dr. Parker's continuous co-operation. The Honorary Secretary was accordingly directed to keep Dr. Parker fully informed by supplying him with copies of all the printed proceedings.

Conf. with App., p. 132.

12. ***Warburg's Tincture.***—Referring to the few extra-pharmacopœia preparations, issued from the Bombay Stores, Dr. Parker

mentioned Warburg's Tincture the ingredients of which were all procurable in India.

13. *Desirable Preparations.*—Concluding his evidence Dr. Parker answered in the affirmative the question, namely, "In the event of this Committee recommending certain preparations, of a selection of the indigenous drugs, would the Bombay Stores be in a position to make and issue these?" He added that on his return to Bombay he would give special consideration to the subject of the most convenient and useful preparations of indigenous drugs.

14. The President then formally thanked Dr. Parker for the interesting information he had given and for his generous offer to continue his co-operation with the Committee.

15. *Drugs in Relation to Diseases.*—The sub-committee appointed (*parā. 5*) to frame recommendations of drugs suitable for bowel complaints and ordinary fevers, were called upon to submit their report. The Honorary Secretary said that, owing to the present meeting having been suddenly convened, with the special object of meeting Dr. Parker, the sub-committee had not had an opportunity of meeting. He had, however, drawn up a list, and as it had been quite independently prepared from that which Dr. Dey had doubtless brought with him, it would be interesting to see how far the two lists agreed with each other in their selection of the best drugs for the purposes indicated.

16. *For Bowel Complaints.*—Dr. Dey was invited to read his list of drugs suitable for bowel complaints. He said that he had not come prepared with a special list, but would recommend that *Mocharas* (the gum of Bombax malabaricum) be taken up as a drug specially deserving of consideration. He believed it was an excellent medicine, almost a specific for dysentery. When pressed by Dr. McConnell as to his personal knowledge of that drug he admitted that he had never used it but believed it was deserving of investigation. The President then asked whether *Mocharas* had been included by Dr. Watt in his list of drugs for bowel complaints. He replied that it had not, that the Indian Pharmacopœia speaks of it as "an astringent gummy exudation" that contains "a large proportion of tannic and gallic acids," but makes no mention of it as a specific in bowel complaints. Dr. Watt added that a correspondent of his, writing from Chutia Nagpur, had recently claimed that it was a drug of high merit in the treatment of dysentery, but that so far as he knew its reputation had by no means been established. Mocharas.

The Committee accordingly agreed that *Mocharas*, so far as the evidence adduced was concerned, possessed no specific value, and was in fact an astringent drug in no way superior to many others already in use.

17. *Dr. Watt's List.*—The President then called upon Dr. Watt to read his list of drugs to be used in bowel complaints.

Conf. with Report, p. 44; Ipecacuanha, App., pp. 120, 127, 154, 182, 282.

The Honorary Secretary replied that the three best indigenous drugs for the complaints mentioned were *Bél* fruit (**Ægle Marmelos**), *Kúrchi* bark (**Holarrhena antidysenterica**) and *Akanda* root-bark (**Calotropis gigantea**). Dr. Dey concurred in that selection and there being no proposals of others to be added to the list the Committee entered on a discussion as to the best preparations of these and dealt with them in the above order.

Bel Fruit: *Report, pp 11, 17, 27, 61; App., 117, 130, 137-40, 145, 182, 309.*

18. *Bél fruit.*—The President asked if there were any better preparations that could be recommended than the Liquid Extract. It was agreed that there were no better preparations. Attention was accordingly directed to the best method of preparing that Extract. Dr. Dey said he had a process of his own that answered admirably. After partially explaining this, he admitted that it differed only very slightly from that read to him by Dr. Warden as the method prescribed in the Pharmacopœia. He agreed, however, that at next meeting he would submit a written statement of his method. The question was then raised as to what stage of ripeness and what part of the *Bél* fruit should be employed. Dr. Dey said he preferred the half-ripe fruit and used the entire fruit. Dr. Parker said that in Bombay they found the Liquid Extract made from the ripe rind keeps better and was equally serviceable to that from the unripe fruit. Dr. Warden said that in the Bengal Stores they use the fresh pulp of the ripe fruit only. Dr. Watt added that the Indian Pharmacopœia directs the Extract of *Bél* to be prepared from the perfectly matured fruit, using only the pulp, but that if prepared from the unripe fruit it is stated to keep better. On the other hand, the Liquid Extract according to the Indian Pharmacopœia is stated to be prepared from the *Bél* fruit without mention being made as to whether the ripe or half-ripe fruit should be so employed. It is added in connection with this preparation that when made in Europe from the imported and therefore dried *Bél* the drug possesses less of its medicinal property than when made in India from the fresh fruit.

Ripe *versus* **Unripe Fruit.**

It was agreed to postpone the discussion of the best method of preparing the Liquid Extract of *Bél* to a further meeting in order to allow Dr. Kanny Lall Dey to submit a note on the subject.

Holarrhena. *Conf. with Report, pp. 2, 11, 72; App., pp. 143, 145, 148, 159, 180.*

19. *Kúrchi Bark.*—Attention was next directed to the subject of *Kúrchi* Bark. It was stated that a useful if not one of the best preparations of this drug was the decoction. Dr. Dey, however, proposed a Fluid Extract by percolation, and it was accordingly agreed this should be tried. It was further urged by Dr. Dey that the root bark of young trees was superior to that of old trees. It was also pointed out that the powdered seed was a reputed remedy for diar-

Liquid Extracts. *Conf. with Report, pp. 14, 17, 54, 71. App., pp. 179-83, 303.*

rhœa, and accordingly that this should be recommended for trial. The dose to be given seemed a point of some uncertainty, and it was therefore thought that this should be left over for discussion at some future meeting.

20. *Akanda Root Bark.*—Dr. Watt then drew the attention of the members of Committee to the subject of the root bark of **Calotropis gigantea** as a drug useful in dysentery and diarrhœa. He said that if the reputation of this drug could be demonstrated beyond question, its value to the people of India could hardly be overstated. The plant occurred very nearly everywhere throughout India, hardly a village existed without some bushes of the *Akanda* on the waste lands and road-sides, and where it did not occur naturally it could easily be cultivated. The prevalence of the maladies named, he added, rendered the discovery of an easily procurable domestic medicine a matter of the utmost importance.

Calotropis. *Conf. with Report, pp. 11, 37, 46, 51, 61; App., pp. 146, 262-65, 293-96, 376.*

Aid to the Village Practitioner: *Conf. with App., p. 142.*

It was, therefore, agreed that a powder of the root bark prepared as described by the late Moodeen Sheriff should be tried and carefully investigated. As the drug has the reputation of being an emetic in large doses, the question of the dose to be recommended for dysentery and diarrhœa was left open for the present.

Conf. with p. 55.

21. *Expert Opinion.*—Dr. Watt then desired permission to recommend two Resolutions for consideration. Referring to Dr. McConnell's enquiry at last meeting (*page 2*) on the subject of the desirability of obtaining the opinions of *Kabirájes* and others, Dr. Watt thought that a report framed on the united opinions of the members, unaided by others who might be consulted, would very possibly not carry with it the conviction essential to a successful solution of the problems before the Committee. He, therefore, moved that—

See Report, p. 17, and, App. VII, pp. 141-144.

"This Committee endeavour to procure the evidence of experts on—

(*a*) the indigenous drugs that should be selected for the purpose of special investigations; and

(*b*) the nature of the preparations that had better be made from these."

Selection of Drugs for Investigation. *Conf. with Report, pp. 18, 23, 26, 29, 34, 53, and 60; App., pp. 141-42, 148-9, 161, 164, 178-84, 201-10, 280-82, 301-02.*

"Further, that it has been found essentially necessary that local Committees be formed in each important centre throughout India to co-operate with the Central Committee in Calcutta. That the Government of India be, therefore, invited to consider the desirability of creating branch Committees in Bombay, Madras, Karachi, Lahore, Allahabad, Nagpur, and Rangoon."

Local Committees.

The President suggested that Dr. Watt had better perhaps submit these proposed resolutions and the arguments he felt disposed

Conf. with App. VII, pp. 139-42.

to advance in their support in the form of a Note to be circulated to the members and discussed at some subsequent meeting. This was agreed to and the discussion was therefore postponed.

Conf. with Report, p. 28.

22. ***Proceedings, etc., to be Printed.***—It was resolved that the Proceedings as well as all special papers communicated, should be printed and circulated from time to time among the members, for discussion at subsequent meetings. It was further agreed that the Proceedings should be treated as strictly confidential, until the final report had been drawn up and submitted to Government of India.

As it was a late hour the discussion of the drugs suitable for fevers was reserved for a future occasion. There being no other business before the Committee the meeting was closed.

Proceedings of the second meeting read and confirmed.

G. KING, *President,*
Indigenous Drugs Central Committee.

The 28th January 1896.

PROCEEDINGS OF THE THIRD MEETING.

January 28th, 1896.

The Indigenous Drugs Committee assembled at the Office of Medical Depôt, Wellesley Place, at 4-30 P.M.

Present:

BRIGADE-SURGEON-LIEUTENANT-COLONEL G. KING, M.B., LL.D., F.R.S., C.I.E., *President.*

SURGEON-LIEUTENANT-COLONEL J. F. P. MCCONNELL, M.D., F.R.C.P.

RAI BAHADUR KANNY LALL DEY, F.C.S., C.I.E.

GEORGE WATT, M.B., C.M., C.I.E., *Honorary Secretary.*

23. The proceedings of the last meeting having been read and confirmed, the Secretary announced that Surgeon-Lieutenant-Colonel Warden had notified that, owing to his having to leave Calcutta on duty, he would not be able to attend the meeting.

24. The President proposed that the discussion on the important Resolutions moved by the Honorary Secretary at last meeting and which had since been printed and circulated should be postponed, in order to allow Dr. Warden to be present. Dr. Watt accepted that suggestion.

25. ***Dr. Dey's List.***—The President called upon Dr. Dey to submit his report on the indigenous drugs which he would recommend to be tried in the treatment of bowel complaints and malarial fevers. Dr. Dey handed in a written statement which, owing to the state of his eye-sight, he asked should be read for him by the Secretary. Dr. Watt, after glancing over the manuscript, explained that it gave details of the preparations recommended for certain drugs. He therefore moved that the note be printed and circulated to the members, and that the discussion thereon be accordingly deferred. He thought that the preferable course, since the details of preparation could not be satisfactorily dealt with until they had been carefully considered. This suggestion having been approved, the Secretary mentioned the names of the drugs specified in Dr. Dey's note.

App. VIII, pp. 145-47.

For bowel complaints the following:—*Bél* fruit (**Ægle Marmelos**); *Isafgul* (**Plantago ovàta**) and *Kúrchi* (**Holarrhena antidysenterica**).

For fevers *Darhaldi* (**Berberis aristata**); *Náta karanja* (**Cæsalpinia Bonducella**); *Ákanda* (**Calotropis gigantea**);

Thol-kuri (Hydrocotyle asiatica); *Nim* (Melia Azadirachta); *Rokan* (Soymida febrifuga) and Anarcotine.

Plantago, App., pp. 145, 157, 182. Ocimum, Report, p. 27: App., p. 182.

Isafgul or Ispaghul.—The President took exception to Plantago, because of the ease with which it could be adulterated more especially with Ocimum and other Labiate grains. He thought that in attempting to recommend domestic medicines, this was a feature that must be kept in view. He had had samples of this drug sent to him in which it might be almost said that even a botanist would experience difficulty in detecting the adulterants. Dr. Dey said *Isafgul* was light coloured and Ocimum dark, but, while admitting this fact, the President said that it would not be difficult to get over that difficulty by any person who wished to adulterate the drugs. He further maintained that *Isafgul* could hardly be regarded as a specific for dysentery. Dr. McConnell said its action was more mechanical than anything else.

26. *Antiperiodics and Quinine.*—Before discussing Dr. Dey's list of drugs for fevers, the Secretary explained that it might now perhaps be the better course for him to read his list (postponed from the second meeting). This was approved. He stated that in his opinion, there was no indigenous drug that could be advanced as an antiperiodic of sufficient merit to be recommended in the place of Quinine. The list which he would submit might be referred to two sections, *viz.*, three drugs that were very generally admitted as possessing antiperiodic properties, and seven that were spoken of as tonics, useful in the debility following fever or which might be employed in mild attacks of intermittent fever where antiperiodics were not indicated. The drugs he alluded to were—

Dr. Watt's list.

Melia, App., pp. 146, 166, 178. Opium, Report, pp. 6, 14; App., pp. 124, 135, 147, 180. Strychnos, App., pp. 146, 178. Picrorhiza, App., p. 181. Report, pp. 37, 47, 50.

1. Aconitum heterophyllum, *Atis* root.
2. Melia Azadirachta, *Nim* bark.
3. Opium (especially Anarcotine).
4. Cæsalpinia Bonducella, nut.
5. Soymida febrifuga, *Rohan* bark.
6. Strychnos Nux-vomica, Seed.
7. Ophelia Chirata, Plant (chiretta).
8. Picrorhiza Kurrooa, *Kutki* root.
9. Coptis Teeta, Plant.
10. Gentiana Kurroo, Plant.

The last four of that list are undoubtedly tonic medicines and, indeed, with the exception of Cæsalpinia Bonducella and Soymida febrifuga, none of the others could be held as having any direct remedial action on malarial fevers. In fact he was prepared to withdraw his entire list and to recommend Quinine as the only drug that had a direct specific value in malarial fevers.

27. *Atis.*—The President said that *Atis* had been fairly tried and found useless. He recollected years ago when he was Superintendent of the Saharanpur Botanic Gardens having received orders to collect large quantities of the root. It was for some years regularly issued from the Medical Stores and the practice abandoned because the drug was found worthless as an antiperiodic. It was a good bitter tonic, but its action in fever was such that he thought it might fairly well be dismissed from further consideration. *App., pp. 136, 137, 156.*

28. *Nux-vomica.*—Dr. McConnell was asked whether he would prescribe Nux-vomica in malarial fever, whether in fact it would not be indicated in cases of accidents, where there was no fever, quite as much as in fever. This was admitted to be so, but Dr. Watt added that it would be next to impossible to find a drug shop anywhere in India where the nuts were not regularly offered for sale. *App., p. 131.*

29. Dr. Watt said that to his personal knowledge the nuts of **Cæsalpinia Bonducella** were largely used in Bengal as a domestic medicine in the treatment of fever. He had seen a powder of these nuts being actually used and heard on more occasions than one from villagers that they had great faith in the drug. Dr. Dey confirmed that statement by remarking that for the masses of the population it was very valuable. *App., pp. 146, 181.*

30. *Barberry.*—Attention was directed to Dr. Dey's list of drugs recommended for malarial fevers. Dr. King remarked that he would like to hear something as to the ascertained merit of barberry in the treatment of malarial fevers. Dr. Dey said that it could only be recommended in cases where quinine could not be administered or had failed. That its great merit was that it did not affect the head. He would recommend a Liquid Extract of the root bark. Dr. King then pointed out that of course there were a good few species of **Berberis**, and he would like to know which species was regarded as the best or whether any barberry would suffice. Dr. Dey thought that **Berberis aristata** or **B. Lycium** might be used indiscriminately. Dr. Watt stated that, while these plants were very prevalent in the Western Himálaya, barberry root was not a drug that could be said to be met with abundantly in the native drug shops of the plains of India. It might of course be obtainable in the drug shops of the larger centres such as Calcutta and Bombay, but certainly not in the rural tracts. The President thought that argument was fatal to any idea of its extended substitution for quinine—a drug which might now be had in pice doses at any Post Office throughout India. Dr. McConnell agreed with Dr. Watt that it was undesirable to recommend an extended use of barberry root. When pressed for his own personal experience the use of the drug, Dr. Dey admitted that he had never tried it. *Dr Dey's List App., pp. 145-147. Rasout Report; pp. 11, 61. App., pp. 145, 149, 180.*

Quinine:

31. *Quinine.*—Dr. McConnell then formally moved the following Resolution:—

App., pp. 133, 180-81.

"That the members of this Committee having considered the lists, placed before them of drugs recommended as serviceable in the treatment of malarial fevers and bearing in mind the cheapness, efficacy, and accessibility of Quinine, do not consider it necessary to investigate the therapeutic properties of any of the reputed indigenous antiperiodics which, as far as the evidence before the Committee is concerned, are all inferior to Quinine, if indeed they possess any merit. (*Conf. with page 12.*)

Hydrocotyle: App., pp. 116, 179.

32. *Dr. Dey Dissents.*—Dr. Watt seconded that Resolution and it was carried unanimously. Dr. Dey dissented, however, in so far as he would recommend a trial being given to **Hydrocotyle asiatica**, in the treatment of fever connected with inflammation of the lymphatics of the lower extremities. Dr. King asked in what form he would propose to issue that drug, to which Dr. Dey replied, a Fluid Extract to be given in 1 to 2 drop doses. He said it should be administered with great care as it was a powerful irritant, and gives rise to erethrema when applied to tender skin. Dr. McConnell asked whether (if that be so) it would be wise to recommend its extended employment by village practitioners.

Fluid Extracts; Conf. with App., p. 303.

Narcotine: App., pp. 124, 132, 135-36, 147, 180.

33. With regard to Narcotine or Anarcotine, Dr. King said there was no evidence at present before the Committee to support a recommendation for its extended employment in malaria. It has been used in Europe and India for fevers of malarial origin.

34. *Bitter Nervine Tonics.*—It was agreed that most, if not all, the drugs mentioned above as employed for fevers would be considered hereafter in their proper positions as bitter and nervine tonics.

App. IX, pp. 146-47.

35. *Mr. A. C. Basu's Communication.*—Dr. McConnell read a letter received from Mr. Amulya Charan Basu—a gentleman who had considerable practical knowledge in the uses of certain indigenous drugs. The letter explained that many of the drugs mentioned in the list appended he used almost daily. Some little discussion took place on one or two of these, more especially *Halviva* (**Andrographis paniculata**)—a drug which Sir William Moore was believed to have spoken favourably of, and **Blumea lacera**, a hæmostatic of considerable merit. Although the drugs dealt with were not confined to the two groups at present before the Committee, it was believed they would prove useful. The Secretary was accordingly directed to have the list printed in the Appendix.

Andrographis: Report, p. 58. Conf. with App., pp. 148, 157, 180.

Blumea: Report, pp. 27, 29; App., p. 181.

36. It was agreed that until the Resolutions submitted by Dr. Watt had been discussed and the points there raised decided it was undesirable to proceed with the enquiry into the drugs suitable for other diseases.

37. ***Procedure.***—Proposed by the Secretary and carried unanimously that in order to save time the proceedings be printed and circulated, and that, unless modifications be desired, the reports thus circulated will each in turn be signed by the President as having been read and accepted, at the succeeding meeting.

There being no further business before the Committee the meeting was closed.

Proceedings of the third meeting read and confirmed.

G. KING, *President,*
Indigenous Drugs Central Committee.

The 18th February 1896.

PROCEEDINGS OF THE FOURTH MEETING.

February 18th, 1896.

The Indigenous Drugs Committee met at the Office of the Medical Depôt, Wellesley Place, at 4-30 P.M.

Present:

BRIGADE-SURGEON-LIEUTENANT-COLONEL G. KING, M.B., LL.D., F.R.S., C.I.E., *President.*

SURGEON-LIEUTENANT-COLONEL J. F. P. McCONNELL, M.D., F.R.C.P.

SURGEON-LIEUTENANT-COLONEL C. J. WARDEN, M.D.

RAI BAHADUR KANNY LALL DEY, F.C.S., C.I.E.

GEORGE WATT, M.B., C.M., C.I.E., *Honorary Secretary.*

38. ***Liquid Extract of Bel.***—The proceedings of last meeting having been read and confirmed, Dr. Warden drew attention to the method of preparing the Liquid Extract of *Bél* described by Dr. Dey (Appendix, page 145). Dr. Warden said he much preferred that of the Pharmacopœia, as Dr. Dey's method of cold maceration would take at least three months without there being any compensating advantage.

Bel. *pp. 8, 11, 27, 61; App., pp. 117-137-40, 145, 182, 309.*

39. ***Local Committees.***—The President remarked that the present meeting had been convened mainly in order to discuss the resolutions placed by Dr. Watt before the second meeting (page 9 of the report and detailed in a special note in the Appendix pages 141 to 144). He remarked that the first point to be determined was as to whether or not the members of the Committee were prepared to accept the principle that the aid of local sub-committees was necessary and desirable. After a short discussion this was freely admitted and carried unanimously.

Local Committees. *Conf. with Report, p. 30; App., pp. 142, 160, 164, 166, 169 77, 203-04, 283-88, 355-6.*

40. Dr. Warden then said that he had prepared a note that had a bearing on the subject under consideration, and which he thought had better be read and dealt with conjointly with Dr. Watt's proposals. This was agreed to and Dr. Warden then read his paper. It was proposed and carried that Dr. Warden's note be printed in full in the Appendix. It was felt that he had greatly increased and expanded the scope of the proposed enquiry. That in fact his scheme of operations practically amounted to a recommendation to make Dr. Watt's committees permanent. The President thought that, before going up to Government of India, the Committee had better discuss the various issues raised and involved by these two proposals more

App. X, pp. 150-51.

fully and carefully than they could do at present. He accordingly thought that it would be preferable to defer discussion until Dr. Warden's proposals had been printed and circulated. Dr. Watt suggested that it was possible to accomplish an amalgamation of the two proposals now before the Committee. That his recommendations were originally for Local Committees to assist the Central Committee in preparing what amounted to a digest of the Indian Pharmacopoeia. He was fully aware that no real progress could be made until some effort had been put forth to test the therapeutic properties of indigenous drugs. Dr. King thought it would suffice to send to the local committees a copy of the instructions we had received and leave them a free hand to make any selection or recommendation they pleased. Dr. Watt, on the other hand, held that the supervision and control of a Central Committee was essential. That otherwise there was a chance that the Indian Pharmacopœia, which had practically been a dead letter for the past quarter of a century, might continue in that position for a similar period. That it would be necessary that the Central Committee should direct the attention of local committees, subject by subject, the same enquiry being made at one time throughout India. That there would not only be a great economy of time by simultaneous action but greater accuracy since the exchange of ideas and experiences effected through the Central Committee would ensure doubtful points being carefully considered. The best course to guide operations might be to follow up Dr. McConnell's proposal of dealing with the drugs in relation to diseases; for example, the best indigenous drugs to be used in the treatment of bowel complaints. The Central Committee have already selected three such drugs, but it is probable that with the aid of local knowledge and experience that enumeration may be increased by one or two more. Having produced a united report the provisional Committees might be dissolved and their report placed before the officers appointed by Dr. Warden's scheme as the drugs regarding which it was more especially desired to obtain therapeutic evidence in support of their reputed actions and remedial values.

Necessity for Therapeutic Tests.

Indian Pharmacopœia.

Simultaneous Action.

Drugs in relation to Disease.

App XII, pp. 160-62.

41. ***Sub-Committee.***—It was agreed that Drs. Warden and Watt be appointed a sub-committee to go into the two proposals and prepare a definite scheme that might be submitted to Government for its favourable consideration.

Provisional List.

Report, pp. 9, 23, 26, 29, 34, 53 & 60; App., XIV., 20 178-81, 21, 210, 80-82, 301-02

42. ***Provisional List.***—Dr. McConnell recommended that the sub-committee be also asked to frame a list of Indian substitutes recommended for imported drugs. This idea having been accepted and carried unanimously, it was agreed that until the sub-committee, were in a position to submit their reports, there would be no occasion to convene a further meeting of the combined Committee.

There being no other subjects for discussion, the meeting was dissolved.

Proceedings of the fourth meeting read and confirmed.

G. KING, *President,*
Indigenous Drugs Central Committee.

The 28th April 1896.

PROCEEDINGS OF THE FIFTH MEETING.

April 28th, 1896.

The Indigenous Drugs Committee met at the Office of the Medical Depôt, Wellesley Place, at 5-30 P.M..

Present:

BRIGADE-SURGEON-LIEUTENANT-COLONEL G. KING, M.B., LL.D., F.R.S., C.I.E., *President.*

SURGEON-LIEUTENANT-COLONEL C. J. WARDEN, M.D., F.R.C.S.

RAI BAHADUR KANNY LALL DEY, C.I.E.

GEORGE WATT, M.B., C.M., C.I.E., *Honorary Secretary.*

43. The Secretary explained that he had received an interesting communication from Surgeon-Major J. Parker, Medical Storekeeper, Bombay, on certain Indigenous Drugs that might be substituted for imported drugs. It was resolved and carried unanimously that this should be printed in the Appendix and circulated for the information of the members of Committee. **Indigenous Drugs.** *App., XI., pp. 152-59.*

44. The sub-committee appointed under the resolution, paragraph 41, then submitted its report on the scheme to be placed before the Government of India. This having been previously circulated for the information of members, a letter was read from Surgeon-Lieutenant-Colonel J. F. P. McConnell, in which he expressed his approval. The various Resolutions and Recommendations were then discussed separately and amended where found necessary. The Secretary was then directed to have the letter and accompanying resolutions prepared for the signature of the President. **Resolutions.** *App. XII., pp. 160-62.*

There being no other subjects for discussion, the meeting was dissolved.

Proceedings of the fifth meeting read and confirmed.

G. KING, *President,*
Indigenous Drugs Central Committee.

The 19th August 1896.

PROCEEDINGS OF THE SIXTH MEETING.

August 19th, 1896.

The Indigenous Drugs Committee met at the Office of the Medical Depôt, Wellesley Place, at 5-30 P.M.

Present:

BRIGADE-SURGEON-LIEUTENANT-COLONEL G. KING, M.B., LL.D., F.R.S., C.I.E., *President*.

SURGEON-LIEUTENANT-COLONEL J. F. P. MCCONNELL, M.D., F.R.C.P.

SURGEON-LIEUTENANT-COLONEL C. J. WARDEN, M.D., F.R.C.S.

RAI BAHADUR KANNY LALL DEY, C.I.E.

GEORGE WATT, M.B., C.M., C.I.E., *Honorary Secretary*.

45. ***Resolutions of Government of India.***—The proceedings of the 5th meeting having been read, the President explained that the Committee had been specially convened to consider the reply received to their letter No. 9 of the 8th May from the Government of India. The Committee's letter and its Recommendations were then read, as also the Government of India's Resolution thereon. Resolution of Government *App. XII., pp. 163-67.*

46. The President pointed out that the Government of India had accepted the recommendations of this Committee and had addressed Local Governments and Administrations on the subject of the formation of Provincial Committees to act in conjunction with the Central Committee. Provincial Committees *Conf. with p. 17.*

47. The Secretary suggested that until information had been obtained that the Committees had been actually formed very little could be undertaken by the Central Committee. It was agreed, however, that the Secretary might address Local Governments on the subject of the Government of India's Resolution and invite early information as to the creation of their Committees (*see App., p. 168.*)

48. The President drew attention to paragraphs 4 and 5 of the Committee's Resolutions and Recommendations, and said that the Central Committee might in the meanwhile engage in the preparation of Classified Lists of Drugs. Dr. Warden suggested that the foundation of that work already existed in the lists of officinal drugs at the end of the Indian Pharmacopœia. He proposed that these should Provisional List. *Report, pp. 9, 18, 26 29, 34, 53 & 60; App., pp. 142-44, 150-51, 160, 162; 179-84; 201-16; 280-82; 301-03.*

be adopted in the first instance, the Central Committee eliminating any that were thought of little value and adding others. That the Central Committee should, in other words, produce an improved and abbreviated revision of these lists. Dr. Watt thought that it might be the best course if Dr. Warden would submit the lists modified in the way he recommended, and that these should then be printed on half page sheets, each sheet devoted to one class of drug, *e.g.*, Tonics, Antiperiodics, etc., etc. That the Central Committee should record its opinions and conclusions below each name of drug on the lists, and invite the Local Committees to write on the opposite half page their views and decisions. At the same time the Local Committees should be asked to add other drugs to the lists that they thought desirable. It was agreed by the members that, if by some such method the opinions of all Committees were directed pointedly to each group of drugs and to each member of such groups, it would be possible for the Central Committee to rapidly arrive at a selection of those that might ultimately be experimentally tested.

App. VII, pp. 170-84.

49. The Honorary Secretary informed the Committee that, as he was going on three months' leave, he would have to resign being Secretary. The President proposed that Dr. Warden be asked to take up the duties of Officiating Secretary, and this was agreed by the Committee and accepted by Dr. Warden.

There being no other subjects for discussion, the meeting was dissolved.

Proceedings of the sixth meeting read and confirmed.

G. KING, *President,*
Indigenous Drugs Central Committee.

The 9th December 1896.

PROCEEDINGS OF THE SEVENTH MEETING.

December 9th, 1896.

The Indigenous Drugs Committee met at the Office of the Medical Depôt, Wellesley Place, at 5-30 P.M.

Present:

BRIGADE-SURGEON-LIEUTENANT-COLONEL G. KING, M.B., LL.D., F.R.S., C.I.E., *President.*

SURGEON-LIEUTENANT-COLONEL E. G. RUSSELL, M.B., B.Sc.

SURGEON-LIEUTENANT-COLONEL C. J. WARDEN, M.D., F.R.C.S.

RAI BAHADUR KANNY LALL DEY, C.I.E.

GEORGE WATT, M.B., C.M., C.I.E., *Honorary Secretary.*

50. Dr. Warden explained that since the date of the last meeting Surgeon-Lieutenant-Colonel E. G. Russell had been appointed by the Government of India in place of late Surgeon-Lieutenant-Colonel J. F. P. McConnell, deceased. He also proposed that Dr. Watt should be invited to resume the duties of Honorary Secretary. Appointment of Dr. Russell. *App., pp. 167-68.*

51. *Bengal Local Committee.*—The President asked whether the Bengal Government had been addressed on the subject of its concurrence in the recommendation that this Committee should, at the same time, act as the Bengal Provincial Committee. The Secretary replied that there was no direct evidence that this had been done. The Government of India's Resolution No. $\frac{18 \text{ Medical}}{643\text{-}661}$, dated the 31st July 1896, appears to have been addressed to all the other provinces except Bengal, and replies have accordingly been received announcing the formation of Local Committees in Bombay (*App., pp. 169-70*), Madras (*App., p. 171*), North-Western Provinces and Oudh (*App., p. 171*), Panjab (*App., p. 171*), Central Provinces (*App., p. 172*), Assam (*App., pp. 172-73*), and Burma (*App., p. 173*). A discussion then ensued as to the desirability of the Committee communicating with the Government of India on the subject of the Bengal Local Committee. It was felt that the Central Committee had better reconsider its recommendation as to its acting as a Bengal Local Committee. Dr. Warden held that the necessity was quite as strong to obtain local aid and knowledge in Bengal as in any other province. It was accordingly agreed that the President should Resolution *App. XII. pp. 163-67.*

address the Government of India in the Home Department recommending, for favourable consideration, a proposal that a Bengal Provincial Committee be formed (*App., pp. 173-74*).

Forms for Clinical Returns. *Conf. with p. 31, and App. XI, pp. 185-87.*

52. *Forms to be used, etc.*—Dr. Warden placed on the table a letter from Surgeon-Lieutenant-Colonel J. Parker, Bombay, in which he suggests that the Central Committee should frame a form of report to be used by trial hospitals, and adds that a uniform method would facilitate the subsequent breaking up of the information supplied by the hospitals. The members of the Central Committee fully concurred in Dr. Parker's recommendation. It was admitted that when the scheme for Provincial Committees was determined on, uniformity of procedure became essential. This idea was embraced by paragraph 5 of the Committee's recommendations laid before the Government of India. Dr. Warden proposed, and the President seconded, that Dr. Russell be entrusted with the duty of preparing the form to be employed by hospitals while submitting their reports.

Physiological Experiments. *Conf. with pp. 40, 60, 102, 142-44, 233, 356-57, 370.*

53. *Physiological Actions.*—Dr. Russell asked whether it was wise to reverse the natural course of investigation in dealing with therapeutic properties before the physiological action of the drugs had been ascertained. He felt that, without being possessed of some exact data we could hardly recommend the experimental trial of poisonous medicines. Dr. Watt remarked that a considerable period must elapse before we could be possessed with the results of physiological experiments, and that we would have to be governed mainly by the widespread knowledge possessed by the native practitioners in the drugs of daily use. Dr. King pointed out that the recommendation in favour of the present course was to eliminate the drugs found useless before incurring the expense of physiological tests. The work of the Committee, he added, is only in its infancy—its operations may take ten or twenty years more. It was, however, agreed that drugs known to be powerfully poisonous (such as **Thevetia neriifolia**) should not be recommended for experiment until they had been physiologically tested.

Classified List of Drugs. *Report, pp. 9, 18, 23, 29, 34, 53 & 60; App. XIV, pp. 178-84.*

54. *Classified List.*—Dr. Warden submitted a classified list of the better known indigenous drugs which he had prepared from the Indian Pharmacopœia. It was agreed that after being discussed and, if found necessary, amended, the list should be made the basis of future dealings with Provincial Committees. The Committee then proceeded to discuss the list. Dr. Watt proposed that the second sentence in the Introductory Note should be omitted. That sentence was as follows—"Several drugs included in the Indian Pharmacopœia are now officinal in the British Pharmacopœia and are consequently omitted from this list." He held that that sentence

might be found to operate injuriously. For example, at several meetings of this Committee, *Bel* fruit had been discussed, whereas by the sentence in question the *Bel* fruit should have been omitted from our deliberations. Dr. Russell concurred in the view that the sentence might be found to hamper the Committee, and, in his opinion, should be omitted. He thought that it would suffice were the Committee to simply omit from consideration any drugs that were believed to be sufficiently well known to require no further investigation.

Bel Fruit. *Conf. with Report, pp. 8, 11, 17, 61, 71; App., pp. 117, 137, 145, 182, 309. Conf. with p. 60.*

Dr. Kanny Lall Dey proposed that under the heading of "Antiperiodics and Febrifuges" three other drugs should be added to Dr. Warden's list, namely, **Berberis Lycium, Berberis aristata,** and **Cæsalpinia Bonducella.** Dr. Watt proposed that **Thevetia neriifolia** should be removed from its present position in the list of Antiperiodics and placed at the bottom, the explanation being made that it was not to be tried in the hospitals until it had been tested physiologically.

Berberis. *App., p. 180.*
Cæsalpinia. *App., p. 181.*

Professor Dunstan's Co-operation.—Dr. Watt explained that during his recent visit to Europe he had had several interviews with Professor Wyndham Dunstan, of the Imperial Institute, on the subject of co-operation with the Central Committee. Professor Dunstan had agreed to perform chemical and physiological experiments with any drugs the Central Committee might send to him, provided only a limited number were sent each year. Dr. Warden remarked that the chemistry of **Thevetia** was fairly well known, but a supply of the seed might be sent to Professor Dunstan with the view to obtain a report on the physiological properties of the drug. The Committee concurred in this recommendation and directed the Honorary Secretary to procure 20lb of the dried stones and to send these to Professor Dunstan.

Thevetia. *App., pp. 181, 216.*

Additions to Classified List.—Under "Astringents" Dr. Dey asked that **Blumea lacera** be added and the Committee concurred. Under "Demulcents" he proposed that **Ocimum Basilicum** should be shown. The President remarked, regarding the enumeration of "Expectorants," that the explanation had better be placed against **Naregamia alata,** and that it perhaps should be dealt with by the Madras Committee. A discussion then ensued as to the desirability of retaining the name "Mydriatics," and it was finally resolved that the word "Sedatives" might be substituted. Dr. Dey asked in what form **Datura** would be issued, to which Dr. Warden replied that he thought we should not attempt for the present to prepare active principles. Dr. Dey remarked that the **Datura**, if issued as a tincture, could hardly be prescribed as a mydriatic. Dr. Russell was of opinion that, though its action as a mydriatic was its chief property, we might for the present issue it as a tincture, and ultimately work back to the active principle.

Blumea. *Report, pp. 11, 29; App., p. 181.*
App., pp. 155, 183.

App., p. 179.

Under "Tonics" Dr. Dey desired to add **Corchorus olitorius**, and Dr. King suggested that in that case the remark should be made that the Bengal Committee had better deal with this drug.

App., pp. 157, 184.

Under the heading "Vesicants" Dr. Watt proposed that **Ammannia baccifera** be added and this was agreed to.

55. It was resolved that Dr. Warden's list as now amended should be printed and placed before the Committee at their next meeting, when a letter would be framed to accompany it, on its being issued to Local Committees. The Local Committees would be invited to offer opinion on the list and to suggest additions which might be made in conformity with the concluding sentence in Resolution 5 (*App., p. 161*) of the Central Committee's recommendations to the Government of India.

Rescinded at Meeting, 21st July 1899.

56. ***Publicity for Committees Proceedings.***—Dr. Warden asked whether the restriction against giving publicity (*Report, page 10*) to the Proceedings of the Central Committee might now be rescinded. He explained that by giving information to the press the Central Committee might receive the assistance of Pharmaceutical Societies and private individuals both in India and in foreign countries. The Committee might even, he thought, secure voluntary workers in the wide fields of chemical and physiological investigation that would have to be traversed. The President, however, thought that this matter had better be delayed until the Government of Bengal had formed a Local Committee and communications had been established between the Central and Local Committees.

Conf. with pp. 10, 88.

Voluntary Workers.

There being no other subjects for discussion, the meeting was dissolved.

Proceedings of the seventh meeting read and confirmed.

G. KING, *President,*
Indigenous Drugs Central Committee.

The 17th April 1897.

PROCEEDINGS OF THE EIGHTH MEETING.

April 17th, 1897.

The Indigenous Drugs Committee met at the Office of the Medical Depôt, Wellesly Place, at 5-30 P.M.

Present:

BRIGADE-SURGEON-LIEUTENANT-COLONEL G. KING, M.B., LL.D., F.R.S., C.I.E., *President.*

SURGEON-LIEUTENANT-COLONEL E. G. RUSSELL, M.B., B.Sc.

SURGEON-LIEUTENANT-COLONEL C. J. WARDEN, M.D., F.R.C.S.

GEORGE WATT, M.B., C.M., C.I.E., *Honorary Secretary.*

On the meeting being constituted the Honorary Secretary read a letter from Rai Bahadur Kanny Lall Dey, regretting his inability to attend owing to a serious illness which had completely prostrated him.

57. ***Provisional List.***—Dr. Warden's classified enumeration of the commoner indigenous drugs was submitted in accordance with paragraph 55 and approved by the Committee as a Provisional List.

58. A letter was then read which had been received from Surgeon-Lieutenant-Colonel C. J. H. Warden on the subject of his nomination to the Bengal Local Committee. The President and Members concurred with Dr. Warden that the Local Committees should, as far as possible, consist of gentlemen who are in a position to carry out direct clinical investigations and who at the same time are not members of the Central Committee. The Honorary Secretary was accordingly directed to transmit a copy of Dr. Warden's letter, together with the above expression of opinion, to the Secretary to the Director General, Indian Medical Service, for favour of submission to the Government of India.

Local Committees. *App. VIII and pp. 175-77, 198-99.*

59. ***Hæmostatic.***—Dr. Watt invited attention of members to a point which he thought had better be decided. Under paragraph 35 reference will be found to a hæmostatic which Mr. Amulya Charan Basu was said to consider of great merit. Judging from the fact that at the late Medical Congress a species of Blumea had been then exhibited as a valuable hæmostatic, it was presumed that Mr. Basu's drug might very possibly be the same plant. Mr. Basu has since then, however, kindly presented the Committee with a large supply, both of the crude drug and of the special preparation employed by him,

Hæmostatic *Report, pp. 11, 27; App., p. 181.* Deposited in Indian Museum.

and it has accordingly been possible to identify it botanically. Instead of being **Blumea lacera**, as had been supposed, it was found to be an American introduced weed (**Eupatorium Ayapana**) common around Calcutta. The question to which attention was, therefore, desired was whether in page 14 and in Appendix, pages 148 and 181, the name **Blumea lacera** had better be removed and that of **Eupatorium Ayapana** substituted. The Committee thought that as the latter plant was an exotic, moreover that as there was a certain likelihood that the former was actually employed in many parts of the country for the purpose indicated, it would suffice if foot-notes were given to explain the fact of **Eupatorium** being the drug in most general use in the vicinity of Calcutta.

App., pp. 201-08. 60. ***Local Committees.***—It was resolved that the first step towards opening up direct dealings with the Local Committees might be to furnish each Committee with 25 copies of the Report of the Meetings and Proceedings of the Central Committee. The Honorary Secretary was accordingly instructed to bring the Proceedings up to date (and also the Appendices), and as soon as the required copies could be procured from the Press, to issue these to all Local Committees as a preliminary Report. The letter that accompanied these papers should explain that they were issued for information, but also in the hope that the Central Committee may be favoured with the opinions of the Local Committees. Further, that attention might be specially drawn to the provisional classified enumeration of Indigenous Drugs, that had been drawn up by Dr. Warden (paragraph 54 and Appendix, pp. 179-84), with the view to obtaining the names of drugs of a more or less local character, that, in the opinion of the Provincial Committees, had better be added to the list of drugs which at an early date should be made the subject of investigation.

Suggestions called for on Provisional List.

Second instalment. *Conf. with p. 58.* 61. ***Drugs to be Investigated.***—It was proposed by Dr. Warden that the Honorary Secretary might at once take steps to secure a supply of the following drugs:—

App., p. 183.	**Podophyllum**—Roots	1 md.	required.
App., p. 179.	**Calotropis**—root bark	"	"
App., p. 181.	**Picrorhiza**—rhizomes	"	"
App., p. 180.	**Alstonia**—bark	"	"
App., p. 183.	**Adhatoda**—root, bark and leaves—one maund of each.		

Conf. with p. 36 and App., p. 151. Dr. Watt asked whether it was intended that the medicinal preparations from the five drugs mentioned by Dr. Warden should be made at the Bengal Depôt. This point was fully discussed when it was resolved that a letter had better be addressed to the Bombay Medical Store-keeper informing him that it was proposed to take up the drugs mentioned as a preliminary measure, but that if he would

like to undertake to manufacture the medicines for the Bombay and Madras Presidencies from all or any of them, the necessary quantity of the crude drugs would be forwarded to him; if not, the manufacture would be undertaken at the Bengal Dépôt.

Standard Samples. Conf. with pp. 52, 56, 77, 96, 170, 308-12.

62. ***Standard Samples.***—It was further resolved that from the stock of each medicinal product, as procured by the Reporter on Economic Products, a quantity should be reserved sufficient to afford a standard sample for each Local Committee. It was felt that such standards might be found of considerable value in future and that as types for our Medical Schools they would be invaluable. It was also deemed desirable that a similar surplus should be reserved of the actual preparations issued for clinical tests. After removal of the quantity necessary for the standard samples, the balance of each raw medicinal product should be sent to the Medical Depôt where it had been arranged the preparations should be made and issued to the Local Committees.

Forms on which to record Results. Conf. with App. XV., pp. 185-97.

63. ***Forms for Clinical Returns.***—Dr. Russell then submitted a series of forms which he proposed (in accordance with the decision of the Committee, paragraph 52) should be furnished to the Local Committees. These, after being examined by the members, were approved and the Honorary Secretary was directed to have them printed and issued to all Local Committees. It was agreed that these should be so numbered as to correspond with the sections of Dr. Warden's classified enumeration of the Commoner Indigenous Drugs, and be also printed in the Appendix for future reference.

There being no other business, the meeting was dissolved.

Proceedings of the eighth meeting read and confirmed.

E. G. RUSSELL, M.B., B.Sc., *President,*
Indigenous Drugs Central Committee.

The 15th April 1898.

PROCEEDINGS OF THE NINTH MEETING.

April 15th 1898.

The Central Indigenous Drugs Committee met at the Residence of the Honorary Secretary at 6 P.M.

Present :

BRIGADE-SURGEON-LIEUTENANT-COLONEL E. G. RUSSELL, M.B., B.Sc., *President.*

SURGEON-MAJOR D. PRAIN, M.A., M.B.

GEORGE WATT, M.B., C.M., C.I.E., *Honorary Secretary.*

On the meeting being constituted the Honorary Secretary informed the members that he had received a letter from Dr. Kanny Lall Dey regretting his inability, through sickness, to be present.

64. ***New President.***—The proceedings of the eighth meeting having been read and confirmed, the Honorary Secretary read letter No. 394, dated the 26th March (*see App., p. 201*), from the Under-Secretary to the Government of India, which informed the Committee of the selection of Brigade-Surgeon-Lieutenant-Colonel E. G. Russell, M.B., B.Sc., to be President of the Central Indigenous Drugs Committee, in place of Brigade-Surgeon-Lieutenant-Colonel Sir George King, K.C.I.E., F.R.S., LL.D., who had been permitted to resign the service of Government. The same letter also announced the appointment of Surgeon-Major D. Prain, Superintendent, Royal Botanic Gardens, Howrah, as a Member of the Central Committee. The Honorary Secretary then informed the meeting that he had already communicated the above letter for the information of all local committees.

65. The Honorary Secretary next referred to the fact that Surgeon-Lieutenant-Colonel C. J. H. Warden, M.D., F.R.C.S., having proceeded on deputation to Bombay, a temporary vacancy had thereby been made in the Committee. At the same time the Honorary Secretary informed the Committee that he also had been granted furlough for eight months, and would leave India early in May.

Appointments App., p. 217.

The question of the selection of an Honorary Secretary was, in consequence, discussed, when it was unanimously agreed that, in order to preserve continuity of work, it was highly desirable that the Officiating Reporter on Economic Products should, if possible, be appointed *ad interim* a Member of Committee and Honorary Secretary. It was accordingly resolved that Dr. Watt, in announcing to the

Government of India, in the Home Department, the vacancy that would be caused by his proceeding on furlough, should take the opportunity of conveying the above recommendation for the favourable consideration of the Government of India.

Conf. with Report, pp. 9, 18, 23, 26, 29, 53 & 60; App., pp. 161; 161; 178-84; 201-210; 280 82; 301-02.

66. ***Provisional List.***—The Honorary Secretary desired permission to lay before the Members of Committee what might be called a progress report of action taken since the date of last meeting. He explained that, in conformity with the resolutions conveyed in paragraphs 60, 61 and 63 (*pp. 30-31*), he had issued to all local Committees the letters noted on the margin and dated the 28th September 1897. But since only a few of the Committees replied to that letter, he had issued a reminder (letters noted on the margin and dated 6th January 1898).

Original Letter. (*App., pp. 201 and 211.*)
45. and 46. Bombay.
47. Madras.
48. Assam.
49. North-West Provinces and Oudh.
50. Panjab.
51. Burma (Rangoon).
52. Central Provinces (Bétul).

Reminders. (*App., p 200.*)
65. North-West Provinces and Oudh, Agra.
66. Panjab, Lahore.
67. Assam, Shillong.
68. Madras.
69. Central Provinces.

The Honorary Secretary then read the replies received up to date to the above letters, which were briefly as follows:—

App., pp. 171, also 201-204.

(*a*) *Panjab* Committee (*letter of 16th February, Appendix, page 202*).—"No suggestions to offer." Owing to the death of the Honorary Secretary of the Panjab Committee it became necessary, in submitting the List of Drugs, to discover the name of the new Honorary Secretary. Accordingly, letter No. 75 of the 7th February (*Appendix, page 203*) was addressed to the Inspector-General, Civil Hospitals. This resulted in the names of the officers who form the Panjab Committee being furnished (*see page 204*) in continuation of the letter already recorded. The correspondence was then read.

(*b*) *Assam* (letter of 19th February, *Appendix, page 205*).—"No suggestions to offer."

(*c*) *Bombay.*—Letter No. G—7567, dated 8th October 1897 (*see App., pp. 211-12*). Surgeon-Lieutenant-Colonel J. Parker, President of the Committee, stated (*paragraph 4*) that personally he thought the list of indigenous drugs prepared by the Central Committee would suffice for some years to come, but that he would submit the general question asked for the views of the Bombay Committee, and would communicate the result hereafter. Since the promised further communication has not been received, it was resolved that the Honorary Secretary should remind Dr. Parker and invite him to be so good as to favour the Central Committee with the views of the Bombay Committee at as early a date as might be convenient. (*See App., p. 301.*)

66. (*d*) *Burma.*—The President of the Local Committee addressed the letter No. 516-43 of the 20th May, to Sir George King, in which he asked for a list of the drugs selected by the Central Committee (*see Appendix, page 205*). The Honorary Secretary then read his reply (*see Appendix, page 206*), in which, paragraph 2, it is stated that "the Central Committee now await the suggestions that your Committee feel disposed to offer, before amending the list into that which should be adopted for future guidance". No reply to that letter having been received, the Central Committee instructed the Honorary Secretary to re-invite attention of the President and Members of the Burma Local Committee with a view to a reply being furnished at as early a date as convenient.

(*e*) *Central Provinces.*—Read letter of 29th January, and its enclosure, from Surgeon-Major H. E. Banatvala (*see Appendix, pages 207-209*). The various recommendations made by Dr. Banatvala were then discussed, and it was resolved that **Terminalia Chebula** and **Cassia Fistula** should be added to Section No. XII—PURGATIVES—and **Corchorus fascicularis** accepted for Section No. VII—DEMULCENTS; the latter to be experimented with only in the Central Provinces. Of the other drugs suggested by Dr. Banatvala, it was thought that they might be left over for future consideration. *Conf. with App., pp. 182 & 183.*

(*f*) *North-West Provinces and Oudh.*—The correspondence that had taken place between the Honorary Secretary and the Local Committee (*Appendix, page 210*) was read, when it was resolved that a more direct expression of opinion from the President and Members of the North-West Provinces' Committee should be invited. (*See App., pp. 285-87.*) *Conf. with p. 45. App., pp. 285-87.*

(*g*) The Honorary Secretary then informed the meeting that up to date no replies had been obtained from the Local Committees of Bengal and Madras. It was accordingly resolved that their attention should be re-invited to the previous correspondence, more especially to the fact that the Central Committee had practically to suspend its action until it had been favoured with the views of all the Local Committees on the Provisional List of Drugs contemplated for investigation. *Bengal. Conf. with App., pp. 283-84. Madras. Conf. with App., pp. 280-83.*

67. ***First Instalment.***—The Committee considered the action taken by the Reporter on Economic Products to procure, for the Medical Store-keeper, Bengal Depôt, the crude drugs of **Podophyllum, Calotropis, Picrorhiza, Alstonia** and **Adhatoda** specified in paragraph 61 (*page 30*).

Before proceeding with the drugs individually the Honorary Secretary drew attention to the concluding clause of that paragraph, *viz.*, where the question is raised whether the preparations from this First Instalment of drugs were to be made entirely in *Conf. with pp. 30-31 and App., p. 151.*

portion of each in Bombay. At the last meeting it was ruled that the point raised had better be referred to the Medical Store-keeper, Bombay. Accordingly, letter No. 45 of the 28th September 1897 (*see Appendix, page 211*) had been addressed to Dr. Parker. His reply letter No. G.—7567, dated 8th October 1897 (*see Appendix, pages 211-12*), paragraph 3, decides in favour of the preparations being made at the Bengal Depôt. In this connection Dr. Watt submitted a letter from Dr. Parker on the subject of the issue of forms to Madras and the Central Provinces. It was concurred that, in future, the Central Committee, when it had occasion to deal direct with the Local Committees in these provinces (on the subject of preparations or reports on experiments), should furnish the Bombay Committee with a copy of its communications to Madras or the Central Provinces' Committees.

But Dr. Parker in his letter (*Appendix, pages 211-12*) raised the question (*paragraphs 1 and 2*) whether, in view of the experiments already performed in Bombay with the resin of **Podophyllum Emodi,** it would be necessary to re-perform similar experiments. No decision was arrived at on this point for the present, as the members of the Central Committee desired time to consider the reports that Dr. Parker had furnished, after being printed in the Appendix (*pages 214-225*).

The further points also raised by Dr. Parker (*paragraphs 5 and 6*) were left over for consideration at the next meeting of the Committee.

The Committee then proceeded to consider the action taken by the Honorary Secretary to procure the crude drugs of the following:—

Podophyllum. *Conf. with paras. pp. 30, 11, 16, 52; App., pp. 211-28, 273-275; 500-61, 475-78.*

67. (*a*) ***Podophyllum Emodi.***—The Honorary Secretary explained that, on receipt of Dr. Parker's letter No. G.—7567 of the 8th October, he had issued his letter No. 70 of the 7th January 1898 (*Appendix, page 213*), in which he called for a copy of the report of trials of **Podophyllum** to which Dr. Parker had alluded. In reply Dr. Parker was good enough, by his letter No. G.—687 of the 29th January (*see Appendix, page 212*), with its enclosures, to comply with that request, and the series of reports will be found recorded in the Appendix. In this connection the Honorary Secretary desired permission to place among the other papers regarding this drug, a correspondence that had ensued between himself as Reporter on Economic Products and Surgeon-Lieutenant-Colonel Warden, and also between himself and the Conservator of Forests in the Panjab (*see Appendix, pages 225-28*). These papers showed that Dr. Warden had already been using this drug, and desired to obtain a

contract for a regular annual supply. The Conservator's letter was highly interesting, as it indicated that the recent efforts in which the Indigenous Drugs Committee had taken a definite part, had already resulted in the organisation of a trade in the root. Dr. Prain said, it was perhaps worthy of remark that a difficulty had arisen as to the use of **P. Emodi,** in as much as the British Pharmacopœia did not authorise the employment of that species in place of **P. peltatum.**

67. (*b*) ***Calotropis gigantea and C. procera.***—The Honorary Secretary submitted copy of his letter No. 55 of the 9th November 1897 (*see Appendix, page 228*) to the Director of Land Records and Agriculture, Bengal, in which he had asked that officer to procure one maund of the root-bark. The supply has not, however, as yet come to hand, but efforts are being made to procure parcels from one or two other provinces. The Honorary Secretary placed on the table a copy of *The Agricultural Ledger No. 17 of 1897*, which gave certain useful particulars regarding this plant. He also mentioned that, in connection with the preparation of a sample of the floss, he had become possessed of a large supply of the seeds. These he had forwarded to the Imperial Institute, London, along with a letter in which he had suggested that Professor Wyndham Dunstan might be asked to chemically examine these with a view to discover whether they possessed the same properties as attributed to the root-bark. Professor Wyndham Dunstan had very kindly agreed to comply, and the results of his investigations, the Committee felt, would be of no ordinary interest and value in connection with the other aspects of the enquiry at present before them.

Calotropis. *Conf. with Report, pp. 8, 9, 11, 16, 51, 55, 61 App., pp. 116, 118, 179, 201 02, 211, 228, 251, 262-72, 293 96, 350, 352-4, 357-58, 362, 366, 373-85, 439 58.*

67. (*c*) ***Picrorhiza Kurrooa.***—The Honorary Secretary stated regarding this drug that he had procured a maund of the root-stocks from the Kashmir Darbar (*letter No. 104 of the 7th February 1898, see Appendix, page 228*), and that the supply, all but 10lb, reserved for type specimens, had been handed over to the Medical Storekeeper.

Picrorhiza. *Conf. with pp 12, 30, 47; App. pp 153 181, 211, 224, 251-58, 355, 459-71*

67. (*d*) ***Alstonia scholaris.***—It was explained that an indent had been issued for the supply of this bark (*letter No. 54 of 9th November 1897, see Appendix, page 229*) to the Director of Land Records and Agriculture, Bengal, but as yet the supply had not come to hand. It was proposed to endeavour to procure it through the Forest Department, but Dr. Prain was good enough to undertake to furnish a sample from the Botanic Gardens. This offer was accordingly accepted by the Committee, the Honorary Secretary having agreed to take delivery of the bark and to have it dried and prepared before transmission to the Medical Depôt.

Alstonia. *Conf. with pp. 30, 41, 47, 51, 61; App. pp. 143, 180, 202, 223, 259-61, 361, 419-38.*

Adhatoda. *Conf with pp 30, 47, 60, 61, 68, 71; App pp. 118, 183, 202, 211, 229-32, 252-57, 358, 361, 366-69, 373-74, 379-80, 382, 387-418.*

67. (*e*) ***Adhatoda Vasica.***—The Honorary Secretary laid on the table a somewhat extensive correspondence that had taken place since the date of last meeting, including a Hand-book on this drug; which had been compiled by Mr. D. Hooper from the papers accumulated in the Office of Reporter on Economic Products. The Director of Land Records and Agriculture, Bengal, had been asked (*letter No. 57 of the 9th November 1897, see Appendix, page 229*) to furnish one maund each of the root, the bark, and the leaves of the plant. On this supply coming to hand, the Honorary Secretary addressed Dr. Warden (letter No. 72 of the 4th February 1898, Appendix, page 228) on the question whether it would be desirable to have the preparations of this drug made from the leaves as well as the roots. In the original form of Dr. Warden's list of indigenous drugs (*Appendix, page 183*) the root only had been recommended. Dr. Warden replied by his letter (*No. 2388 of the 5th February, Appendix, pages 231-32*), and remarked that, since the drug contains a definite crystalline active principle, it would be preferable to ascertain which part—root or leaf—contains that principle in greatest abundance. He also pointed out that, since Mr. Hooper had shown a great variation in the quantity of the alkaloid between specimens procured from South and those from North India, it would be desirable to ascertain the actual variation that took place with locality of production, with season of the year when collected, and with samples derived from a wild, as compared with a cultivated stock. This led to a full discussion, and finally it was agreed that Dr. Prain, as Director of the Botanical Survey of India, should be asked to have the plant cultivated at the Botanic Gardens, Calcutta, Saharanpur, Poona, and the Nilgiri Hills; and, if possible, also at the Municipal Gardens of Lahore, the Agri-Horticultural Society's Gardens of Madras, and the public parks in Rangoon and Karachi. Both leaves and roots could then be supplied from each of the centres of cultivation during three periods of the year—the cold season, the hot season, and the rains. It was further suggested that if Dr. Prain could arrange to procure similar supplies from Ceylon, Java, and Singapore, it would be possible to determine very definitely the question raised in Dr. Warden's letter. It was, however, thought that, to compare with the cultivated plant, it would be essential to arrange for a corresponding supply of the wild plant from Assam, Upper Burma, Kalka, and Bengal. The Honorary Secretary agreed, as Reporter on Economic Products, to procure the wild plant. The Committee then formally resolved that the specification on page *183* of the Appendix regarding the drug should for the present be amended as follows:—

Conf with p. 47, also Mr. Hooper's Report, App., p. 292.

"A proof spirit tincture of the root and also of the leaves $2\frac{1}{2}$ oz. to the pint." (*Conf. with page 40 below, also App., p. 303*).

67. (*f*) ***Indian Squills***.—(*a*) **Scilla indica**, *Baker* (Syn. **Ledebouria hyacinthoides**, *Steud.* **Melanthium hyacinthoides**, *Mad, Herb.*,) and (*b*) **Urginea indica**, *Kunth* (Syn. **Scilla indica**, *Raxb.*).

Report — pp 48, 57, 65: App., pp. 125, 150, 233-42, 289-91.

The attention of the Committee was next directed to the series of papers that had been circulated regarding two other drugs which, while not specified under paragraph 61 for present detailed investigation, had been brought to the attention of the Committee in connection with paragraphs 6 and 43. It will be found that these paragraphs record valuable contributions as having been placed before the Committee, regarding the Indigenous Drugs of Madras and Bombay (see Appendix, pages 116-27 for the one paper, and pages 152-59 for the other). **Surgeon-Lieutenant-Colonel S. L. Dobie**, the author of the Madras paper (*page 125*), alludes to the subject of Indian substitutes for Squills, and **Surgeon-Lieutenant-Colonel J. Parker** gives particulars (*page 152*) of a similar nature regarding the Bombay substitutes. It was thought desirable that an effort might at present be made to botanically determine the plants referred to, as a useful prelude to the products in question being examined, chemically, therapeutically and physiologically at some future date. The Honorary Secretary accordingly desired permission to record the action already taken.

The Honorary Secretary, by letter No. 30, dated 23rd June 1897 (*Appendix, pages 233-34*), gave a brief sketch of the distribution of the above-mentioned plants, as also of **Dipcadi unicolor**, *Baker*, and asked for bulbs of all the plants used, or spoken of as substitutes, for the imported Squill, so that these might be cultivated in the Botanic Gardens, Calcutta, and their botanical origin established. This resulted in a fairly extensive correspondence, in much useful information being furnished both by the Medical Store-keeper, Madras, and the gentlemen with whom he was good enough to open up dealings, and in the supply of eight separate consignments of bulbs. These as received were registered in the Office of Reporter on Economic Products (*viz., Reg. Nos. 9891, 9820, 9948, 10035, 10036, 10111, 10112, and 10256*) and transferred to the Superintendent, Royal Botanic Gardens, in order to be cultivated and named. In the Appendix will be found the more important papers of this correspondence (*Appendix, pages 233-42 and 289-91*),—formal acknowledgments being omitted.

In connection with this subject the Honorary Secretary explained that he had also addressed the Medical Store-keeper, Bombay, in letter No. 32, of the 23rd June 1897 (*see Appendix, page 240*). **Surgeon-Lieutenant-Colonel J. Parker** furnished, i reply, his letter

No. G. 4775 of the 10th July (*Appendix, page 241*) and four sets of specimens (*Reg. Nos. 9660, 9661 and 9662, also 9662 (a)*: the fourth was not separately registered, as it was only sent for comparison as a possible adulterant). Most of these have since been identified by Dr. Prain, (*see Appendix, pp. 242 and 290-91*).

67. (*g*). ***Pogostemon plectranthoides.***

App., p. 243-45.

The second subject of botanical enquiry already prosecuted to some extent, originated in connection with the passage in Dr. Parker's contribution (*Appendix, page 158*) on the subject of **Pogostemon parviflorus**. The Honorary Secretary explained that he had issued his letter No. 29 of the 23rd June 1897, and the correspondence ensued (*Appendix, pages 243-45*) with the final result that the plant referred to has been determined as **Pogostemon plectranthoides.**

App., VIII. P., pp. 231-32.

68. ***Chemical Analysis.***—A discussion then ensued as to the suggestion contained in the 5th paragraph of Dr. Warden's letter of the 5th February as to the desirability of Government being asked to sanction the chemical analysis of drugs being undertaken by the Chemical Examiner. After some consideration it was thought that since Mr. Hooper had already devoted much attention to **Adhatoda,** it would be very desirable, so far as that drug was concerned, to obtain his co-operation. The Honorary Secretary thought that there would be no difficulty in arranging for Mr. Hooper's assistance, since the enquiry would be strictly on the lines that the Trustees of the Museum desired to lay down for the regulation of the chemical work to be undertaken by their Curator, and he felt sure Mr. Hooper personally would be gratified at being selected for this important duty.

Mr. Hooper's Report, see App., p. 292.

Experiments.

Conf. with pp. 26, 60, 102, 110-2, 232, 353, 366.

69. The Members of the Committee were unanimous in accepting Dr. Warden's proposal (*App., p. 232*) that the Committee should most carefully examine all points connected with the pharmacy, chemistry and physiological action of the drugs selected for experimental purposes, with the view to being in a position to give valid reasons for all its recommendations.

70. The following Resolution was proposed by the President, and carried unanimously :—

Sir George King's retirement.

"That this Committee desires to record its sense of the irreparable loss experienced by the retirement (owing to his departure from India) of its late President, Brigade-Surgeon-Lieutenant-Colonel Sir George King, K.C.I.E., M.B., F.R.S., L.L.D., etc. Since the appointment of the Indigenous Drugs Committee, in October 1895, Sir G. King has filled the post of President, and in that capacity his services have been invaluable to the Committee; his great talents, wide learning, and able conduct of business have, in the highest

degree, contributed to facilitate the labours of the Committee and to ensure the efficiency and success of its work."

There being no other business, the meeting was dissolved.

Proceedings of Ninth Meeting read and confirmed.

E. G. RUSSELL, *President,*
Indigenous Drugs Central Committee.

The 2nd August 1898.

PROCEEDINGS OF THE TENTH MEETING.

August 2nd, 1898.

The Central Indigenous Drugs Committee met in the Office of the Reporter on Economic Products to the Government of India, Indian Museum, at 5-30 P.M.

Present:

LIEUTENANT-COLONEL E. G. RUSSELL, M.B., B.Sc., I.M.S., *President.*

MAJOR D. BRAIN, M.A., M.B., F.R.S.E., I.M.S.

RAI BAHADUR KANNY LALL DEY, F.C.S., C.I.E.

D. HOOPER, F.I.C., F.C.S., *Honorary Secretary.*

71. The Proceedings of the Ninth Meeting held on the 15th April, having been printed and circulated among the members, were formally signed by the President.

App. XXI, pp. 247-48.

A letter was read from the Under-Secretary to the Government of India (Home Department), appointing Mr. D. Hooper, Officiating Reporter on Economic Products, to be a member of the Central Indigenous Drugs Committee in place of Dr. G. Watt, C.I.E., and during the absence of that officer on furlough. It was proposed by the President and carried unanimously that Mr. Hooper take Dr. Watt's position of Honorary Secretary to the Committee.

App. XXI, pp. 248-49.

72. The vacancy on the Committee caused by Colonel C. J. H. Warden's absence on furlough for two years remaining unfilled, it was decided to address Government with a view to a successor being appointed. It was suggested that the newly-appointed Medical Store-keeper to Government, Bengal Command, would be an acquisition to the Central Committee.

73. A letter was read from Sir George King, K.C.I.E., F.R.S. the late President, thanking the Committee for a copy of the resolution relating to his retirement recorded by them at the meeting held on the 15th April last (*Report, para. 70*).

Selection for Bombay. *App. XIII. C*

Conf. with pp 2 and 52 App., pp 16, 168-70, 201 212-13, 221 255, 268, 297-300, 354.

74. ***Trial Hospitals.***—The question of trial hospitals came up for consideration. In this connection letters from the Government of Bombay (dated 19th October 1896, *App., p. 168*) and from Lieutenant-Colonel J. Parker, I.M.S., President of the Bombay Local Committee (dated 1st August and 25th November 1896, *App., pp. 169-70*, and 8th October 1897, *App., pp. 211-12*) were read and discussed. In these letters Dr. Parker informed the Central Committee of the selection of hospitals that had been made for Bombay and in which clinical enquiries into indigenous drugs might be conducted. Other

Committees had made up to date no suggestions as to trial hospitals, but it was considered the wisest course to allow them to select their own spheres of action.

* Tincture of Adhatoda Vasica
* Tincture of Picrorhiza Kurrooa. App., pp. 251-58.
* Tincture of Alstonia scholaris. App., pp. 259-61.
* Tincture and powder of Calotropis procera. App., pp. 262-72.
* Resin of Podophyllum Emodi. App., pp. 273-75

75. ***Issue to Hospitals of Medicinal Preparations.***—It having been reported by the Medical Store-keeper that five medicinal preparations * were ready for distribution, it was proposed that the Honorary Secretary should at once forward these to the Local Committees for therapeutic investigations. He was desired to invite the Local Committees to select their own hospitals and to report to the Central Committee when the trials were sufficiently advanced to enable them to give definite opinions on the actions of these drugs. But in order that no unusual delay might occur, it was deemed desirable to fix a limit for submission of reports, and the 1st April 1899 was named as possibly a suitable date.

Kino App., pp. 276-79

76. ***Kino.***—The Director General, Indian Medical Service, in letter No. 3130, dated 8th June, forwarded to the President an extract from a communication from the Medical Store-keeper to the Government (Madras Command), suggesting the more extensive cultivation and exploitation of **Kino** and other minor forest products by Government Departments. The Honorary Secretary, after reading the paragraph in question, informed the Committee that the yield of **Kino** in the Malabar Forests and its valuation in the London market, were questions which the Reporter on Economic Products, in consultation with the Inspector General of Forests, was at the present moment occupied in deciding. As a matter of form, therefore, and after further discussion, it was agreed that the letter from the Director General, Indian Medical Service, could be best disposed of by the Honorary Secretary, as Reporter on Economic Products, reporting to the Central Committee on the action that had taken place in his Office in the matter of **Kino.**

77. ***Suggested Additions to List of Indigenous Drugs.***—The Honorary Secretary next laid before the Committee the letters received from the Honorary Secretaries of the Local Committees, since the date of the last meeting. The communications—three in number—were discussed separately.

App., pp. 280-82.

(*a*) *Madras*—The Honorary Secretary under cover of letter, dated May 6th, 1898, forwarded a copy of the Proceedings of the meeting of the Local Committee held on 28th April. The Committee suggested the addition to the list of the four following drugs, which have to some extent acquired a reputation in South India:—

Hardwickia pinnata, Oleo-resin—Substitute for Capaiba.

Tylophora asthmatica—Emetic and anti-dysenteric (similar to Ipecacuanha).

Butea frondosa, Seeds—Anthelmintic.

Toddalia aculeata, Dried root-bark—Stimulant tonic.

The various members of Committee expressed their opinions on the virtues of these drugs, and the following decisions were ultimately arrived at:—

With regard to the oleo-resin of **Hardwickia**, it was thought that, as the tree was not widely distributed and the balsam was no likely to be obtained in sufficient abundance for general use, this product need not be investigated. The root of **Tylophora asthmatica**, it was pointed out, was already included in the list (*see App., p. 182*). With regard to the root-bark of **Toddalia**, **Mr. Hooper** stated that the active principle was doubtless berberine which had been isolated from the root by **Messrs. Perkin and Hummel** in 1895. As there are already three plants containing this alkaloid on the list (see **Tinospora cordifolia**, *App., p. 179*, **Berberis Lycium**, **B. aristata**, *App., p 180*) it was decided not to include another for the present. The seeds of **Butea frondosa** having been pronounced an efficacious anthelmintic, it was resolved that the Madras Committee be asked to make this the subject of a local investigation, and to be kind enough to report the results to the Central Committee. (*See letter, App., p. 282*).

77. (*b*) *Bengal.*—A letter was read from **Colonel G. Bomford, I.M.S.**, Principal, Medical College, dated 14th June 1898, in which he informed the Central Committee that only one other member of the Local Committee was then in Calcutta, *viz.*, **Dr. Evans**,* but that he and **Dr. Evans** had "no proposals to offer as regards adding to the provisional list of drugs." He further intimated his intention of leaving India on furlough, and suggested the reconstruction of the Bengal Committee. It was decided to address the Government of India with regard to the vacancy in the Bengal Committee. It was also announced by the President that **Captain R. Bird, M.D.**, who was originally appointed a member (*see App., pp. 175-76*) had returned to the Medical College, Calcutta, since **Dr. Bomford's** departure. *App., XVIII, pp. 283-84.* No proposals to offer.

77. (*c*) *N.-W. P. & Oudh.*—The letter addressed by the Honorary Secretary (**Dr. Watt**) in April last to the Government of the North-West Provinces and Oudh (*see App., p. 285*), has resulted in a reply which furnishes the names of the present members and Honorary Secretary of the Local Committee (*App., p. 286*), but gives no particulars as to amendments or additions to the Provisional Classified List *App., pp. 285-87.*

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* Since died of plague.—*Hon. Sec.*

of Indigenous Drugs proposed for initial investigation. It was unanimously resolved to issue an urgent reminder to the Honorary Secretary at Agra inviting him to convene a meeting with a view to ensuring a more active interest on the part of the Committee in the subject of Indigenous Drugs (*App., p. 287*).

78. ***Progress Reported on Five Drugs under Investigation.***—The attention of the Committee was next called to the progress made in connection with the five selected medicines for examination and special report.

Podophyllum. *Conf. with pp. 30. 36. 52; App., 211-27; 273 75; 360-61; 475 81.*

(*a*) **Podophyllum Emodi.**—Notwithstanding the fact that the resin from the Indian source had been favourably reported upon by Dr. Childe at Bombay (*Appendix, pages 215-222*), it was thought desirable, on the principle of obtaining reports of as comprehensive a character as possible, that the resin should also be tested by other Local Committees. A paper was laid on the table written by Professor Wyndham R. Dunstan and Mr. Thomas Anderson Henry on "A chemical investigation of the constituents of Indian and American **Podophyllum**" in which the composition of podophyllin from these two sources is shewn to be remarkably similar. It has also been stated concerning these two drugs that they differ comparatively little in physiological activity. It is proposed to publish an *Agricultural Ledger* on the subject of **Podophyllum Emodi** but, on the recommendation of the President, it was considered best to delay until further results (obtained in India) were ready for incorporation.

Calotropis: *Conf. with, Report, pp. 8, 9, 11-37, 51, 55, 61; App., pp 262-72, 293-96, 358, 439-58.*

(*b*) **Calotropis gigantea** and **C. procera.**—The Honorary Secretary announced that the Principal, Civil Engineering College, Sibpur, had arranged to collect the root-bark of **C. gigantea** from young and from old plants at three different seasons of the year (*Appendix, page 265*). The Committee was further informed that the Superintendent, Government Botanical Gardens, Saharanpur, had advised the despatch of two maunds of bark collected during the hot weather from old and from young plants of **C. procera** (*Appendix, page 266*). Mr. Hooper, Honorary Secretary, sought the opinion of the Committee as to which kind of bark (of the many indented for), should be employed for the manufacture of the experimental tincture, or whether each of the varieties of bark should be made into a separate tincture.

Dr. Prain and the President were of opinion that it would be impracticable to endeavour to determine by clinical investigation the relative therapeutical value of so great a number of preparations of one drug. The majority of members favoured the employment of bark from mature plants. Before deciding this point, however, Mr. Hooper was asked to experiment with the barks from Saharanpur by estimating the amount of extractive matter removed by rectified spirit; the root-bark which afforded the most acrid extract might then be employed for the tincture. [The tincture and powder referred to under para. 75 had been prepared from the bark of mature plants (*Reg. No. 11096-1, see p. 266*)—*Hon. Sec.*].

Reason for Collections, *see p. 262.*

See p. 293.

78. (*c*) **Picrorhiza Kurrooa.**—The required quantity of tincture had been made from freshly dried rhizomes procured in Kashmir (*Appendix, page 228, Reg. No. 10365*). It will be seen (*under para. 75*) that the Medical Storekeeper, presuming the drug was to be used as a substitute for Gentian, had enquired if the tincture was to be made with orange peel and cardamoms as prescribed in the Pharmacopœia. He was informed in reply (*Appendix, pages 252-53*) that this and all other tinctures should be simple preparations without the addition of flavouring or colouring agents.

Picrorhiza. *Conf. with pp 12, 30, 50, 80, App., pp. 155, 181, 211, 228, 251-58, 361, 459-74.*

(*d*) **Alstonia scholaris.**—Dr. Prain, Superintendent, Royal Botanic Gardens, had kindly supplied a quantity of green bark (*see Appendix, page 259, Reg. No. 10779*) which when dried weighed 50lb. This was the stock from which the tincture had been prepared (*para. 75*) and issued to Local Committees. The Honorary Secretary announced that he had in stock a further supply of one maund (*Reg. No. 11306*), which had been furnished by the Director of Land Records and Agriculture, Bengal.

Alstonia. *Conf. with pp. 30, 37, 51, 61; App. pp. 113, 180, 202, 229, 259-61, 361, 419-38.*

(*e*) **Adhatoda Vasica.**—With reference to the discussion on this drug at the last meeting (*see paras. 67 (e) and 68*), Mr. Hooper reported that experiments had been made on the comparative value of the leaf and root of this plant, and it had been found that while *Vasicine* existed in measurable quantities in the leaf, it occurred only in traces in the root. Samples of root and leaves were exhibited, and the attention of the Committee drawn to the absence of odour and taste in the root, and to its woody character. Dr. Dey observed that

Adhatoda. *Conf. with pp. 30, 38, 50, 68; App. pp 148, 183, 202, 211, 229-32, 251-57, 387-418.*

Kabirajis used the *bark* of the root in their practice. It was contended that the bark was not specified in the ordinary references to Adhatoda, and unless the active properties were known to be resident in the bark, the entire root would naturally be used, just as Belladonna and Calumba roots are employed in official * preparations in England. A consignment of stem-bark having also been received in the Reporter on Economic Products' godowns, the instructions of the Committee were solicited as to its disposal. Before a decision could be given, the Committee requested Mr. Hooper to analyse the root-bark and the stem-bark in addition to the leaves and root, so as to obtain a clearer idea of the distribution of the alkaloid in the plant. The report might be submitted at the next meeting.

Squills. *Conf. with Report, pp 39, 57.*

79. *Squills.*—Reference was made to Dr. Prain's valuable determinations of the plants from Madras and Bombay which are supposed to afford the indigenous medicinal Squills. The results are not sufficiently complete for definite opinions being formed on the subject of the substitution of the Indian for the imported drug, but they promise to be of much value. It was resolved to give in the Appendix Dr. Prain's letters which, since they quote the Registration numbers, given to the bulbs as received from Madras and Bombay, can be readily identified with the drugs to which they refer.

App., Conf. with App., pp. 126, 152, 233-242, 289-91.

80. Correspondence with the Medical Store-keeper, Bengal Command Calcutta, was then read and considered. The question whether the distribution of preparations should be made from the Medical Stores, Wellesley Place, or from the Museum, was afterwards discussed. It was freely admitted that it would be more convenient if they were issued from the former, but, since no arrangements have as yet been made, the Honorary Secretary was asked to take delivery of the medicinal preparations for the present. The general question of distribution might be considered at a future meeting.

There being no further business, the meeting adjourned.

Proceedings of Tenth Meeting read and confirmed.

E. G. RUSSELL, *President,*
Indigenous Drugs Central Committee.

The 20th March 1899.

Note by President.

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* Although the root-bark is the only active part and the woody central matter inert, in the case of Ipecacuanha and Senega, yet the whole root is used in making the official Pharmacopœial preparations.

PROCEEDINGS OF THE ELEVENTH MEETING.

March 20th, 1899.

The Central Indigenous Drugs Committee met in the Office of the Reporter on Economic Products to the Government of India, Indian Museum, at 5 P.M.

Present:

LIEUTENANT-COLONEL E. G. RUSSELL, M.B., B.Sc., I.M.S., *President.*
LIEUTENANT-COLONEL D. P. MACDONALD, M.D., I.M.S.
MAJOR D. PRAIN, M.A., M.B., F.R.S.E., I.M.S.
RAI BAHADUR KANNY LALL DEY, F.C.S., C.I.E.
GEORGE WATT, M.B., C.M., C.I.E., *Honorary Secretary.*

81. Before desiring the Committee to pass the proceedings of the Tenth Meeting, Dr. Watt explained that, on his return to India from furlough on the 20th January 1899, he took over charge of the duties of Honorary Secretary, in virtue of the conditions under which Mr. Hooper had officiated for him (detailed in paragraph 71 above). The President in approving of that action desired that the Government of India should be acquainted with the resumption of the duties of Honorary Secretary on the part of Dr. Watt. (*See App., p. 249.*) He also moved that a vote of thanks be conveyed to Mr. D. Hooper for the very great services he had rendered to the Central Indigenous Drugs Committee by his having officiated as their Honorary Secretary during the absence of Dr. Watt. This was carried unanimously.

82. The Honorary Secretary then explained that the Proceedings of the Tenth Meeting having been printed and circulated for the approval of the members in the ordinary way, he desired permission to move that the President be now authorised to sign the official copy. This was approved, and the Committee thereafter proceeded to discuss the various questions recorded on the Agenda.

83. *Appointments.*—The Government of India's reply to the Honorary Secretary's letter based on paragraph 72 (*App., p. 248*) was read. It announced the fact of their having appointed Lieutenant-Colonel D. P. Macdonald, a member of the Central Indigenous Drugs Committee, in place of Lieutenant-Colonel C. J. H. Warden on furlough. (*App., p. 248*) Colonel Macdonald having been advised of this fact (*App., p. 249*), took his seat as a member of the Committee.

The Government of India further announced that the Bengal Government had been invited to appoint a successor to Lieutenant-Colonel G. Bomford on the Provincial Committee. The Bengal Government by their letter of the 21st September 1898 informed the Central Committee that Major G. F. A. Harris had been so appointed (*App., p. 250*).

84. ***Form of Publication of Proceedings.***—The Honorary Secretary desired permission of the Committee for papers given in the proceedings, being grouped under subject headings rather than dispersed in the strict sequence of date. He explained that the above appointments form a chain in connection with paragraphs 71 and 72, and would most probably be more convenient if recorded in one place than if dispersed throughout the proceedings of the two meetings. This was the more necessary since in the interval between meetings so much often transpires that the action of one meeting frequently overlaps that of another. He believed that in bringing under subject headings (as for example, Appointments, Podophyllum, Squill, etc.) papers held in abeyance for a short interval or carried into previous proceedings, and thus printed in certain chains, they would be found more convenient than by being scattered throughout the Proceedings. This suggestion was approved.

85. ***Progress Reported on the Five Drugs under Investigation.***—The Honorary Secretary read the following abstract of the correspondence on this subject the full details of which will be found in the Appendix (*pages 251-75*) inclusive.

On the 16th August 1898 Mr. Hooper forwarded to the Honorary Secretary of each Provincial Committee under cover of letter of that date (*App., p. 255*), 25 copies of the Central Indigenous Drugs Committee's Report and Appendix up to April 1898. Mr. Hooper's letter at the same time announced that the preparations from Adhatoda, Picrorhiza and Podophyllum, would very shortly be issued for therapeutic tests. The reports, it was desired, should, if possible, be furnished on the printed forms already supplied, and they should be submitted by the 1st April 1899.

Picrorhiza; Cont. with Report, pp. 12, 30, 37, 47; App., pp. 155, 181, 159-74.

(*d*) **Adhatoda and Picrorhiza.**—On the 30th August the Medical Store-keeper announced (*App., p. 256*) that the tinctures of Adhatoda and Picrorhiza had been issued to all Local Committees in accordance with the instructions contained in the Honorary Secretary's letter No. 123 of the 22nd July (*App., pp. 251-52*). At the tenth meeting of Committee Mr. Hooper was requested to conduct a chemical examination of the leaves, stem-bark, root-bark and root of Adhatoda (*see Proc., para. 78 (e)*). Mr. Hooper's report having been submitted was read by the Honorary Secretary, and the Committee directed that it should be printed in the Appendix (*see App.,*

p. 292). From Mr. Hooper's results it would seem established that the leaves are the most convenient parts of the plant for medicinal purposes.

85. (*b*) **Alstonia.**—On the 29th August 1898 the Medical Store-keeper wrote that he had prepared 340lb of the tincture of Alstonia bark (*App., p. 260*). The Honorary Secretary then advised the Local Committees that they might very shortly expect to receive a supply of that drug (*App., p. 261*). The tincture, it will be seen from the Appendix, was prepared from bark that had been supplied by Major Prain from the Royal Botanic Garden, Sibpur.

Calotropis: *Conf. with Report, pp. 8, 11, 37 46, 55, 61: App., pp. 262-72, 293-94, 373-85, 439-54.*

(*c*) **Calotropis.**—Dr. Watt next drew attention of the Committee to the remarks contained in the Proceedings of last meeting (*para. 78, (b)*) on the subject of Calotropis. In submitting the letters that he had issued regarding this drug (*App., pp. 260-70*) he desired to point out that he had no intention that medical preparations should be made from, nor therapeutical tests conducted with, each of the extensive series of barks that had been procured. His object was to have these chemically analysed in order to solve the question of age of plant and season of year at which the root-bark had best be collected.

At the suggestion of the Central Committee Mr. Hooper performed a chemical examination of two of the barks derived from Saharanpur, *viz.*, the barks of young bushes and that of old bushes collected during the hot weather (Reg. Nos. 11096 and 11096-1, *App., p. 266*).

In the Appendix, page 293, Mr. Hooper's report (in reply to the suggestion of the Committee (*para. 78 (b)*) will be found, and it will be seen that the results so far as they go justify the selection that was made, *viz.*, of the root-bark of mature plants (*No. 11096-1*) as being most serviceable. But as Calotropis gigantea is the more abundant species of the two, it was somewhat unfortunate that C. procera had been selected for initial experiment with this drug. It may also be added that recently a set of the entire series of barks has been sent to Professor Wyndhan Dunstan, Scientific Director of the Imperial Institute (*App., p. 294*), with a request that he may be so good as to furnish a report on the entire collection. It may thus be anticipated that Professor Dunstan's investigations will settle once and for all the question of the best species, the age of bush most desirable and the most appropriate season for collection of the root-bark.

It will be seen (*App., p. 267*) that instructions were issued to the Medical Store-keeper to supply two preparations from the root-bark of Calotropis procera, *viz.*, a tincture and a powder. Mr. Hooper's letter, dated the 15th October 1898, advised despatch of these preparations to the Local Committees (*App., p. 268*).

85. (*d*) **Podophyllum.**—The issue of this drug was announced in letter of the 16th August 1898 (*App., page 255*). In the Appendix (*pages 273-75*) further particulars will be found.

A paper by Drs. Mackenzie and Dixon on the physiological action of the resin of the Indian drug was circulated for the information of the members of Committee. It was resolved (as in a previous instance (*see p. 46, para. 78 (a)*) that this valuable contribution to our knowledge of this Indian drug should be utilised in the preparation of a statement of all the results, as soon as the returns had been obtained from the Provincial Committees.

Standard samples: *Conf. with pp. 31, 56, 77, 96, 170, 308-12.*

86. ***Issue of Type Specimens.***—On the 30th August 1898 (*App., page 256*) the Medical Store-keeper reported that there was a surplus of the tinctures of **Adhatoda** and **Picrorhiza** in stock of 120lb each. These he was directed to retain to meet future indents. It was agreed by the Committee that it might be added that the surplus is also intended to be utilised as type samples for Medical Colleges. This remark applies to each of the five drugs under investigation. A surplus of the raw product actually used in the manufacture of tinctures, etc., as also a surplus of the preparations themselves, it was resolved should be reserved, in order that they might be carefully registered and issued to Medical Colleges and certain other institutions as standards or types of the raw and manufactured drugs actually investigated by the Central Indigeneous Drugs Committee.

Hospitals: *Conf. with pp. 2, 43; App., pp. 164, 168-70, 204, 212-13, 222, 255, 268, 297-300, 354.*

87. ***Selected Hospitals and Dispensaries.***—In laying the recent papers on this subject before the Committee, the Honorary Secretary remarked that it would be seen that BOMBAY had furnished the list of Hospitals selected for therapeutic investigations in a letter dated 1st August 1896 (*see App., pp. 168-69*). This subject is again incidentally alluded to in a letter of the 8th October 1897 (*see App., p. 211*), and the list of hospitals is further confirmed by letter No. G. 8700, dated 21st December 1898 (*see App., p. 297*).

The authority for a provincial selection of hospitals and dispensaries, in which trials with indigenous drugs would be performed, is given in the Government of India's Resolution of the 31st July 1896, paragraph 2, section 6 (*App., p. 163*). When preparations of indigenous drugs were ready for issue, the attention of all Provincial Committees was intended to be drawn to these orders for the selection of hospitals and dispensaries by Mr. Hooper's Circular letter of the 16th August 1898 (*App., p. 255*) and by his subsequent letter of the 15th October 1898 (*App., p. 268*). In the last mentioned he pointedly asked that the Central Committee should be advised of the selection that had been made. This same subject is again alluded to in a letter to the Honorary Secretary of the Local Committee, Central Provinces.

In addition to Bombay the following provinces have furnished the list of hospitals and dispensaries as those in which indigeneous drugs may be tried :—

Central Provinces (*App., p. 297*).
Burma (*App., p. 298*).
Assam (*App., p. 299*).
Panjab (*App., p. 299*).

On hearing these particulars read by the Honorary Secretary, it was unanimously resolved that the draft letter submitted, *No. 35* (*see App., p. 350*) should be issued to all Provincial Committees that had not furnished the desired information, *viz.*, Madras, Bengal, the North-West Provinces and the Panjab.

Bengal App., p. 385. N.-W. P. App., p. 371. Panjab App., p. 367. Burma App., p. 377. Central Provinces App., p. 383.

Provisional List.

Conf. with pp. 9, 18, 23, 26, 29, 34 & 60; App., pp. 160-62; 179-84; 201-210; 280-82; 301-02.

88. ***Provisional List of Indigenous Drugs.***—The Honorary Secretary next invited attention of the members of Committee to the present position of the discussion and correspondence on the subject of the Classified List of Indigenous Drugs, intended to be made the subject of initial investigations. The Classified List was originally submitted to the Committee by Lieutenant-Colonel Warden, and after being fully discussed and amended, was accepted by the Central Committee (*para. 57*). During the sitting of the eighth meeting, it was agreed (*para. 60*) that the Provisional Classified List should be issued to all Provincial Committees with the view to obtaining the names of drugs of a more or less local character that had better be added to the list of drugs which, at an early date, should be made the subject of investigation. Accordingly a circular letter was communicated on the 28th September 1897 to all Provincial Committees (*see App., p. 201*), subsequently a reminder was issued on the 6th January 1898 (*see App., p. 202*).

In the Proceedings of the Ninth Meeting, paragraph 66, it will be seen that the replies to the above communications (up to 15th April 1898) were laid on the table of this Committee and discussed. On that occasion the Central Committee decided that the Provincial Committees that had still not furnished suggestions should be again reminded that the operations of the Central Committee were practically suspended pending their being furnished with the opinions repeatedly called for (*App., p. 301*). The results obtained up to 2nd August 1898, the Honorary Secretary pointed out, would be found reviewed in the Report of the Tenth Meeting, paragraph 77. The Honorary Secretary then stated that he very much regretted he had failed to obtain any information from the Local Committee of the North-West Provinces and Oudh. He suggested that Bombay might be reminded of the promise made by Lieutenant-Colonel Parker that he would submit the general question asked, for the views of the Bombay Committee (*App., pp. 211, 301*). That Madras

might be invited to say whether it had any further suggestions to offer than were contained in the letter of the 6th May 1898 (*App., p. 280*). That Burma should receive an urgent reminder that the information called for by the various letters mentioned above was anxiously awaited (*App., p. 301*).

The Honorary Secretary then added that practically all the Provincial Committees had accepted the Provisional List or made slight suggestions, which, on the whole, had been accepted by the Central Committee. He, therefore, desired authority to now revise the Provisional List and to issue it when amended, as the List of Drugs which for some few years to come would be the standard from which, as far as possible, drugs would be selected for therapeutic investigations.

Symplocos racemosa.

The President, while concurring with the Honorary Secretary, desired permission to propose another addition to the list. He had recently had occasion to believe that *Lodh* Bark (**Symplocos racemosa**) had proved of great service in the treatment of Chyluria (Filarial). **Dr. Dey** expressed a similar opinion in favour of the introduction of this drug, and **Colonel Macdonald** suggested that as that disease was almost peculiar to Bengal, it might be desirable that, in the first instance at all events, the experiments should be conducted by the Bengal Committee. This was agreed to, and the Honorary Secretary was desired to add the bark in question to the Provisional List.

Fluid Extracts. *Conf. with Report, pp. 8, 17; 71; App., pp., 179-84; 303.*

89. ***Liquid Extracts.***—The Honorary Secretary then placed on the table a letter from the Medical Store-keeper, Bengal Command, in which, while discussing the tincture of **Adhatoda Vasica** (that had been issued for clinical trials), he expresses the opinion that a liquid extract might be preferable. **Colonel Macdonald's** letter (which will be found in the Appendix (*page 301*)) goes on to say that, "It is possible that given in ordinary tincture dose of about one drachm or so it may not produce much effect. Should the clinical reports, hereafter received, prove this to be so, I would suggest that a fluid extract, of which one part represents one part of the leaves, be used instead." This led to an interesting discussion in which the President, also **Dr. Macdonald** and **Dr. Dey**, expressed the opinion that in all cases fluid extracts on the standard of one to one would be decidedly preferable to tinctures. **Dr. Dey** urged that as the village drug-sellers could not (except in large cities) obtain alcohol of sufficient quality for medicinal purposes, and as they, moreover, rarely prepared any tinctures, it was desirable to recommend standard preparations of a nature that they could and would prepare. **Dr. Dey** specially recommended a liquid extract one to one of ***lodh*** bark as the most serviceable form of administration of

that drug. The majority of the members seemed in favour of these views, but the general question of a complete revision of the Provisional List and the substitution of liquid extracts for the tinctures already recommended, was left over for consideration at next meeting.

90. ***Despatching Agency.***—The Honorary Secretary next placed on the table a letter from Major H. E. Banatvala, I.M.S. (Honorary Secretary of the Indigenous Drugs Committee of the Central Provinces). Major Banatvala asks (*see App., p. 269*) whether it would be possible in future for the Medical Store-keeper to issue the medicinal preparations direct to the selected hospitals and dispensaries of these provinces instead of sending them in the first place to Betul. Mr. Hooper's reply (*App., p. 270*) was also read in which he promised that, on obtaining the list of hospitals and dispensaries, he would endeavour to have the tinctures sent direct. Colonel Macdonald pointed out that no proper provision had as yet been made as to the agency through whom indigenous drugs should be issued, but that if all Provincial Secretaries were to ask the same favour, a very considerable extra burden would be thereby thrown on his department. It was accordingly agreed that until the Committee had obtained more experience and a proper channel had been organised, the present informal arrangement had better be allowed to continue. Direct Supply.

91. ***Doses of Drugs issued for Trial.***—A letter was read by the Honorary Secretary which had been received from the Medical Store-keeper, Bombay Command, dated 29th December 1898, on the subject of the doses to be administered of the drugs already issued for trial (*see App., p. 304*). The Honorary Secretary also read Mr. Hooper's reply (*App., pp. 304-05*) which had been issued to all Local Committees for information and guidance. That letter had been framed in consultation with the President since it was not considered necessary to convene a special meeting of the Committee. It is there stated that "with regard to the Tinctures of Alstonia, Adhatoda, Calotropis and Picrorhiza the President considers that they might be administered as the non-poisonous tinctures of the present British Pharmacopœia, *viz.*, in doses of from ½ to 1 fluid drachm." Doses.

"The Podophyllin prepared from Podophyllum Emodi should be given in the same dose as the resin prepared from the American root which is ¼ grain as a minimum and 1 grain as a maximum."

"It had also been suggested with regard to the powdered root bark of Calotropis procera, that the directions given in Rai Bahadur Kanny Lall Dey's book on Indigenous Drugs might safely be followed. The doses given in that work are as an Calotropis. *Conf. with p. 9.*

alternative 3 to 10 grains, as an emetic 30 to 60 grains, and as a substitute for Ipecacuanha in dysentery 5 to 10 grain."

The Committee concurred in these opinions, but thought that in future all preparations issued should bear printed labels, stating name of medicine, action, dose, and, if possible, the names of some of the diseases for which it might be administered.

Conf. with Butea gum: *Page 61.*

92. ***Kino.***—With reference to the concluding remarks in the Committee's Report (*para.* 76), the Honorary Secretary explained that he had given in the Appendix (*pages* 276-79) a brief review of some of the facts that had recently been brought to his notice. He hoped very shortly to publish a detailed statement in *The Agricultural Ledger* that would give the new material that had been brought to light by the Forest Department. One thing was certain, there was no occasion for this Committee to investigate the properties of the so-called Bengal Kino or any other substitutes for Kino. The true Malabar Kino was an "indigenous drug," of which an unlimited supply could be obtained through the Forest Department and at a price that precluded all competition of other articles of a similar nature.

93. ***Malwa Oil.***—The following communications were read:—Letter No. 286-D., dated 23rd September 1898, from the Inspector General of Civil Hospitals, Bengal; No. 1865-B., dated 12th September, from the Officiating Secretary to the Board of Revenue, Bengal; and an extract from a note by Mr. G. M. Gregory, Officiating Superintendent, Benares Opium Factory (*see App., pp.* 306-07).

Narcotine: *Conf. with pp.* 6, 12, 14.

The Committee after carefully going into the question submitted for their consideration, directed the Honorary Secretary to reply that the oil in question cannot be recommended for medicinal purposes. They are in fact of opinion that in these days of standardisation of drugs it would be a distinctly retrograde step to recommend the use of a preparation of linseed oil and Narcotine of indefinite strength, mixed with the inert impurities of crude opium.

Standard samples: *Conf. with pp.* 31, 52, 77, 96, 170, 308-312.

94. ***Standard Samples.***—The Honorary Secretary explained that, in the report of the Indian Sub-Committee of the Imperial Institute for the quarter ending 31st December 1898, mention is made of the supply of Indian drugs from the Institute to Professor Leech of Owen's College, Manchester. In consequence the Honorary Secretary explained that he had taken the liberty to unofficially invite the attention of the Government of India (in the Revenue and Agriculture Department) to the fact that the Indian Indigenous Drugs Committee contemplated issuing standard samples of all the drugs investigated by them to Indian Medical Schools. That perhaps similar sets might be supplied to a selected number of Colleges in Europe,

more especially in such instances as Owen's College, where voluntary co-operation with the Indigenous Drugs Committee might be anticipated. In reply the Government of India desired the Honorary Secretary to lay the matter before the Committee in order that the Government of India might obtain some official statement upon which they could lay the proposal before the Indian Sub-Committe of the Imperial Institute for consideration. The papers were circulated and the letter given in Appendix (*pages 908-09*) authorised to be issued.

The subject of the supply of types of indigenous drugs has come before the Committee on more than one occasion. In paragraph 62 it was ruled that standard samples of both the raw and manufactured articles actually experimented with should be issued to the Local Committees.

Bottles in which to be issued.

The President remarked that it would be desirable to procure a uniform bottle or box in which types of drugs should be issued since it would be very desirable that every effort should be made to ensure their being properly labelled and preserved. The question of the supply of these bottles, it was decided, had better, at some early date, be referred to the Government of India in connection with their Resolution of the 31st July 1896, paragraph 2, sections 10 and 13 (*see App., pp. 163-67*).

Squills. *Conf. with pp. 39, 48; App., pp. 195, 152; 233-42; 289-91.*

95. *Squills.*—The history of this enquiry has already been recorded in paragraph 67 (*f*), but the Committee are of opinion that it may now be useful to record the results obtained up to date.

It was not contemplated to call upon Provincial Committees to investigate the local supplies of Squills. It was thought desirable, in the first instance, to ascertain what bulbs were usually procured by the Medical Depôts of Bombay and Madras, and the sources from which derived. The correspondence in Appendix, pp. 233 to 242, gives full particulars. Briefly eight sets of bulbs were furnished by the Medical Store-keeper, Madras, and four by the Medical Store-keeper, Bombay. These, as received, were handed over to Major D. Prain, who was good enough to agree to have them cultivated and to report their scientific names on the plants coming into flower. The reports received, which will be found in Appendix, pp. 289-91, give the determinations of nine out of the twelve sets of bulbs. These are as follows:—

Madras.

Reg. No 9691	.	Not come into flower.
" 9820	.	Urginea indica, *Kunth.*
" 9948	.	Scilla indica, *Baker.*
" 10035	.	Scilla indica, *Baker.*

Madras.

Reg. No.	10036 .	Scilla indica, *Baker*.
"	10111 .	Urginea indica, *Kunth*.
"	10112 .	Not come into flower.
"	10256 .	Not come into flower.

Bombay.

Reg. No.	9660 .	Pancratium triflorum, *Roxb*.
"	9661 .	Urginea indica, *Kunth*, but one bulb of this set has proved to be Amaryllis equestris, *Ait.*
"	9662 .	Crinum latifolium, *Linn.* var. moluccanum, *Sp. Roxb.*
"	9662(*a*).	Crinum asiaticum, *Linn.*

It will thus be seen that so far, the Madras bulbs have all proved to be one or other of the two species of Indian Squills. But of the Bombay bulbs No. 9660 which Dr. Parker says (*App., p 241*) was formerly used at the Medical Stores is not a Squill at all. No. 9661, the bulb now used and which is obtained from the sandy shores near Bombay, is one of the forms of the true Indian Squills. While Nos. 9662 and 9662 (*a*) are, as Dr. Parker stated, species of Crinum the bulbs of which are often dried, sliced and sold as substitutes or adulterants for the true article.

Without prosecuting the enquiry into every province, it may be admitted that the above facts clearly establish that a supply of one or other of the two species of Squills can be had readily enough in India and with care quite pure.

First. Instalment.

Conf. with p. 30.

96. ***Selection of Second instalment of Drugs for Investigations.***—By Circular note of the 5th December 1898 Mr. Hooper obtained the sanction of the members of Committee for the following drugs being taken up for investigation:—

See App. XXXVIII.

- Acacia Catechu. (*Conf. with page 61* (3).)
- Andrographis paniculata. (*Conf. with page 14.*)
- Cæsalpinia Bonducella. (*Conf. with page 12.*)
- Embelia Ribes. (*Conf. with page 62.*)
- Ipomœa hederacea. (*Conf. with page 62.*)

The Honorary Secretary reported that the following action had been taken with the view to obtain supplies of the raw products.

Acacia Catechu, *Pegu Cutch.*—Letter No. 14, dated 10th January 1899, to the Director of Land Records and Agriculture, Burma—(*see App., p. 340*). This asked for a supply of 25lb of the finest quality of Burma Cutch. The supply came to hand in May, and 16lb were forwarded to the Medical Store-keeper for the purpose of being made into a tincture. On the 9th June the Medical Store-keeper reported that 100lb of tincture of black Cutch were ready for distribution to the Provincial Committees (*App., p. 340*).

Andrographis paniculata.—Letter, dated 10th January 1899, to Director of Agriculture, Bengal, asking to be supplied with one maund of the dried plant (*App., p. 341*).

Cæsalpinia Bonducella.—Letter, dated 10th January, to Director of Agriculture, Bengal, asking to be furnished with 40lb of the seeds.

Embelia Ribes.—Letter of 10th January 1899, to Director of Agriculture, Bengal, asking for 40lb of the dried fruits.

Ipomœa hederacea.—Letter of the 10th January 1899, to the Director of Agriculture, Bengal, asking for 20lb of the dried seeds.

It was resolved that, as difficulty might be experienced by Bengal in supplying so many of the products, indents for some of these should be submitted to the other provinces.

97. ***Indian Addendum to the British Pharmacopœia of 1898.***—The Honorary Secretary read letter No. 381, dated the 6th March 1899, from R. Nathan, Esq., Under-Secretary to the Government of India, on the above subject. Also the enclosures to that letter, namely, a Despatch from Her Majesty's Secretary of State for India (Revenue No. 7 of the 12th January 1899), and a letter from the President of the General Medical Council to His Grace The Duke of Devonshire, K.G., Lord President of the Privy Council. Along with these papers there also came, as an enclosure, a copy of the Report from the Pharmacopœia Committee, on the proposed Indian and Colonial Addendum to the British Pharmacopœia of 1898 (*App., pp 313-15*).

Communication from Government of India *Conf. with pp. 67-71, 85-90, 313-39, 189 91.*

Since these papers had previous to the meeting been circulated by the Honorary Secretary for the information of the President and Members, and their opinions had thereby been recorded on the file, the various points raised were freely discussed—

(1) The Honorary Secretary was desired to reply to the Government of India that the Committee, previous to the receipt of the papers above mentioned, had no official knowledge of a special Indian Committee having been appointed some few years ago by the Government of India to enquire into the drugs of this country. It should be pointed out that reference would appear to be made to some such Committee on page 4 and again on most of the subsequent pages of the proposed Addendum.

Committee's Reply.

The Committee were unanimously of opinion that, without being advised of the extent to which the proposed Addendum represents the views of the former Indian Committee and also of the data upon which these views had been advanced, they were practically not in a position to offer any criticism on the Addendum, nor to invite opinions from the provincial committees (*App., p. 315*).

(2) Major D. Prain drew attention to a point of importance, *viz.*, that the Pharmacopœia Committee of the Medical Council (*Report,*

p. 5). only invites amendments on proposed descriptions; asks in some cases to be furnished with complete descriptions; desires to be supplied with opinions regarding preparations of the drugs selected or to be given suggestions regarding other drugs; but it would seem that the Indian authorities are not asked to criticise the drugs actually selected.

Experiments. Conf. with pp. 26, 40, 102, 133, 142, 232, 336, 357.

97. (3) The members of the Central Indigenous Drugs Committee of India are unanimously of opinion that they are not at present in a position to formulate definite statements as to the value of any indigenous drug, still less of a selection of such drugs. Further, they do not believe that any previous Indian Committee, however constituted, could have been more able than they are, to make a selection of Indian drugs that could be authoritatively advanced as useful substitutes for the drugs of European Pharmacy. This Committee in other words think that a selection of Indian indigenous drugs, based exclusively upon their reputation with Native practitioners, would be, and has been in the past, misleading if not dangerous and certainly prejudicial to progression. With all due respect, therefore, to the ability and learning of those concerned in framing the proposed Indian Addendum to the British Pharmacopœia, this Committee feel themselves left no alternative but to decline to express opinions on any indigenous drug until it has been chemically, physiologically and therapeutically examined, and its exact properties and actions thereby established.

Conf. with App., p. 150.

Conf. with App., p. 160, Resolution 4.

97. (4) In pursuance of the instructions given by the Government of India this Committee have, however, been under the necessity to draw up what they have designated a *Provisional List of Indigenous Drugs* (*see App., pp.* 179-84). That list is not advanced as being the most complete, nor even the best that could be framed. It was prepared with two main ideas in view, *viz.*, prevalence in the drug shops of the whole of India and probability of value. From it were purposely excluded for the present all drugs which, while indigenous to the country and extensively prescribed by both Native and European practitioners, are already more or less recognised by, and described in, the British Pharmacopœia. Of this nature might be mentioned Aconite, Opium, Nux-Vomica, Kino, Turpentine, Gum Arabic, Edible Oils, Chaulmugra Oil, Chiretta, etc. The Provisional List prepared by the Central Committee has since been approved or amended by the Provincial Committees. It is the list of drugs to be investigated in the first instance. If, therefore, in our present state of knowledge any selection of the Indian indigenous drugs can be advanced as possibly of value, this Committee are unanimously of opinion that their Provisional List is much to be preferred to that given in the proposed Indian Addendum to the British Pharmacopœia.

Better known Drugs.

Conf. with Report, p. 26.

97. (5) While the above observations record so far as this Committee are prepared to do so at present, their views on the proposed Addendum to the British Pharmacopœia, they think that it may serve a useful purpose to arrange in two columns alphabetically the indigenous drugs mentioned in the two lists. The extent to which they agree or differ will thereby be forcibly exemplified.

List in the Addendum.	***Indian Indigenous Drugs Committee's Provisional List.***
1. Abrus precatorius (Root, page 17 in the Addendum).	
2. Acacia arabica (Bark, p. 8).	
3. A. Catechu (Gum and Cutch, pp. 8, 13).	(1) Acacia Catechu (Cutch).
4. A. leucophlœa (Gum, p. 8).	
5. Acalypha indica (Juice, p. 8).	(2) Acalypha indica (Root).
	(3) Adhatoda Vasica (Leaves).
6. Ægle Marmelos (Fruit, p. 10).	(4) Ægle Marmelos (Fruit).
	(5) Alstonia scholaris (Bark).
	(6) Ammana baccifera (Plant).
7. Andrographis paniculata (Plant, p. 9).	(7) Andrographis paniculata (Plant).
8. Andropogon Nardus (Lemon Oil, p. 21).	
9. Anogeissus latifolia (Gum, p. 18).	
10. Arachis hypogæa (Oil, p. 21).	
11. Aristolochica indica (Stem and Root, p. 9).	
12. Berberis aristata (Stem, p. 11).	(8) Berberis aristata (Rasout). B. Lycium.
	(9) Blumea lacera (Plant).
13. Butea frondosa (Gum and Seeds, p. 12).	(10) Butea frondosa (Seeds).
	(11) Cæsalpinia Bonducella (Seeds).
14. Cæsalpinia Sappan (Heartwood, p. 22).	
15. Calotropis gigantea, C. procera (Root-bark, p. 19)	(12) Calotropis gigantea (Root-bark). C. procera.
	(13) Carica Papaya (Papain).
16. Carum copticum (Oil, p. 20).	(14) Carum copticum (Oil).
	(15) Cassia Fistula (Pods).
	(16) Cedrela Toona (Juice).
17. Cinnamomum glanduliferum (Wood, p. 13).	
18. Cissampelos Pareira (Root, p. 14).	
19 Citrus Aurantium (Orange Peel, p. 10).	
	(17) Corchorus fascicularis (Plant).
	(18) C. olitorius (Leaves).

List in the Addendum—contd.	*Indian Indigenous Drugs Committee's Provisional List*—contd.
20. Coscinium fenestratum (Stem, p. 14 in the Addendum).	
21. Crinum asiaticum *var.* toxicarium (Bulb, p. 15).	
22. Datura fastuosa. *var.* alba (Leaves and Seed, pp. 15-16).	(19) Datura fastuosa (Leaves).
23. Embelia Ribes (Fruits, p. 16).	(20) { Embelia Ribes (Fruits). E. robusta (Fruits).
	(21) Euphorbia pilulifera (Fresh Plant).
24. Exacum bicolor (Plant, p. 17).	
25. Feronia elephantum (Gum, p. 12).	
26. Garcinia Morella (Gamboge, p. 12).	
	(22) Gentiana Kurroo (Root and Stem).
27. Gossypium herbaceum (Root-bark, p. 17).	
	(23) Holarrhena antidysenterica (Bark and Seeds).
	(24) Hydrocotyle asiatica (Plant).
	(25) Ipomœa hederacea (Resin and Seeds).
	(26) I. Turpethum (Resin).
28. Jasminum Sambac (Flowers, p. 19).	
	(27) Melia Azadirachta (Bark).
29. Mylabris phalerata (Beetles, p. 19).	(28) Mylabris cichorii (Beetles).
	(29) Narcotine.
	(30) Naregamia alata (Root and Stem).
	(31) Nerium odorum (Bark).
	(32) Ocimum basilicum (Seeds).
	(33) Picrasma quassioides (Indian Quassia wood).
	(34) Picrorhiza Kurroa (Rhizomes).
30. Pinus longifolia (Oleo-resin, p. 23).	
31. Piper Betle (Leaves, p. 11).	
32. Plantago ovata (Seeds, p. 18).	(35) Plantago ovata (Seeds).
	(36) Podophyllum Emodi (Himalaya Podophyllin).
	(37) Rheum Emodi (Himalayan Rhubarb).
33. Samadera indica (Wood and Bark, p. 22).	
	(38) { Scilla indica (Indian Squill). Urginea indica (ditto).
34. Sesamum indicum (Oil, p. 22).	

THE BRITISH PHARMACOPŒIA.

List in the Addendum—concld.	*Indian Indigenous Drugs Committee's Provisional List*—concld.
	(39) Soymida febrifuga (Bark).
	(40) Strophanthus sp. (? S. Wallichii (Leaves).
35. Swertia affinis, S. corymbosa } (Plant, p. 23).	
	(41) Symplocos racemosa (Bark).
36. Terminalia Chebula (Fruits, p. 20).	(42) Terminalia Chebula (Fruits).
	(43) Thevetia neriifolia (Kernel and Bark).
37. Tinospora cordifolia (Stem, p. 24).	(44) Tinospora cordifolia (Plant).
38. Toddalia aculeata (Root-bark, p. 24).	
39. Tylophora asthmatica (Leaves, p. 25).	(45) Tylophora asthmatica (Leaves).
40. Valeriana Leschenaultii. *var.* Brunoniana (Rhizomes, p. 25).	

97. (6) The members of this Committee desire to point out that the two lists numerically are practically the same; 40 articles in the one and 45 in the other. But if the gums and oils (seven in number) be excluded from the list furnished by the Pharmacopœia Committee it is reduced to 33. This Committee, as already explained, did not consider it necessary to propose to investigate, at least for the present, the special properties of these well-known substances, many of which have been more or less continuously in use in Indian Pharmacy for many years. But out of the remaining 33 it may be said that 15 are common to both lists. Of the balance (18) the following five may be characterised as met with only in the Madras Presidency or along a narrow tract of country on the Western Coast of India. They are not articles that could readily be procured in the Native drug shops of the rest of India, *viz.*:—

Conf. with page 60 (4).

Coscinium fenestratum. (*See App., p. 118*).

Exacum bicolor.
Samadera indica.
Swertia affinis.
Valeriana Leschenaultii.
} Not mentioned in the South Indian or Bombay lists:—App., pp. 116-127; 130-140; and 152-159.

South Indian Drugs.

To these might also be added—

Cæsalpinia Sappan. (*See Ap., pp. 156*).
Garcinia Morella.

Reasoning without any positive knowledge of the value or otherwise of the drugs mentioned, in the opinion of the members of this Committee, these articles should be excluded from any list intended

to be applicable to the whole of India. There thus remain 11 products in the one list and 30 in the other that are not common to both. These may be exhibited side by side—

Addendum.	*Provisional List.*
Abrus precatorius.	Adhatoda Vasica.
Acacia arabica (Bark).	Alstonia scholaris.
Aristolochia indica.	Ammania baccifera.
Cinnamomum glanduliferum.	* Blumea lacera.
Cissampelos Pareira.	Cæsalpinia Bonducella.
Citrus Aurantium (Orange Peel).	Carica Papaya.
Crinum asiaticum.	Cassia Fistula.
Gossypium herbaceum.	Cedrela Toona.
Jasminum Sambac.	Corchorus fascicularis.
Piper Betle (Pan leaves).	* C. olitorius.
Toddalia aculeata.	Euphorbia pilulifera.
	Gentiana Kurroo.
	Holarrhena antidysenterica.
	Hydrocotyle asiatica.
	Ipomœa hederacea.
	I. Turpethum.
	Melia Azadirachta.
	Narcotine.
	* Naregamia alata.
	Nerium odorum.
	Ocimum basilicum.
	Picrasma quassioides.
	Picrorhiza Kurrooa.
	Podophyllum Emodi.
	Rheum Emodi.
	Scilla indica and Urginea indica.
	Soymida febrifuga.
	* Strophanthus sp.
	* Symplocos racemosa.
	Thevetia neriifolia.

Drugs of Local Interest.

The products marked * in the above enumeration are recognised by this Committee to be of local interest mainly, and the contemplated investigations connected with them are accordingly intended to be conducted in the provinces where they are abundant or of especial interest and repute. A few more might have been so marked just as **Cinnamomum glanduliferum** (from the Addendum) might be viewed as peculiar to the Eastern side of India. But if products are regularly traded in and even exported (such, for example, as the Himalayan rhizome of **Picrorhiza Kurrooa**) they have been regarded by this Committee as Indian drugs worthy of investigation.

97. (7) Without venturing to criticise the comparative prospective values of the two lists of drugs which they have shown side by side, this Committee feel called upon to deprecate the substitution

of Swertia affinis and S. corymbosa for the well-known officinal Himalayan Chiretta, which can be had in every drug shop throughout India. They can see no advantage in the substitution of the South Indian Exacum bicolor (a plant quite unknown in the Indian drug shop) for the Himalayan Gentian or Picrorhiza—roots (*kuru* and *kutki*) that can be found in the drug shops of even the most remote and rural parts of the country. If a VALERIAN be required, one or two Himalayan forms can be purchased all over India, and there would be nothing gained, but in the opinion of this Committee an element of confusion introduced by the Nilgiri species being alone officially recognised in place of the forms already well known. Similarly it would seem superfluous to assign a position to the gum of Butea frondosa (Bengal Kino as it has been called) when the Malabar or true Kino can be had to an unlimited extent and, perhaps, at a cheaper rate than the proposed substitute.

Chiretta. App., p. 119

Kino. Conf. with App., pp. 278 79.

This Committee also are of opinion that to officially recognise the bulb of Crinum asiaticum as a substitute for European Squill, when India possesses in abundance one if not two species of bulbs closely allied to the official article of European Pharmacy, would be most unwise. Scilla indica and in its place not infrequently Urginea indica—the true Indian Squills—may be had in almost every drug shop, while Crinum asiaticum is only met with as an inferior and cheap substitute or adulterant.

Squills. Conf. with App., pp. 233-49; 289-91.

This Committee are constrained to add that the following articles (mentioned in the Addendum) from the very unimportant positions they occupy as drugs, in the opinion of the Natives of this country, seem hardly worthy of serious consideration:—

Drugs to be omitted

- Abrus precatorius. (*See Appendix, pp. 120, 127.*)
- Aristolochia indica.
- Gossypium herbaceum (Root-bark).
- Jasminum Sambac (Flowers).
- Piper betel (Pan leaves).

97. (8) These opinions having been offered by the various members of Committee, both at the meeting and on the file, circulated for careful consideration at their homes, it was considered, in conclusion, that no immediate action could be taken to ascertain the opinions of the Provincial Committees until the reply had been received to the letter (*No. 26, dated 23rd March 1899, App., p. 315*) they had addressed to the Government of India.

There being no other business the meeting was adjourned.

Proceedings of the eleventh meeting read and confirmed.

E. G. RUSSELL,
President,
Indigenous Drugs Central Committee.

The 21st July 1899.

PROCEEDINGS OF THE TWELFTH MEETING.

July 21st, 1899.

The Central Indigenous Drugs Committee met in the Office of Reporter on Economic Products to the Government of India, Indian Museum, at 5 P.M.

Present:

LIEUTENANT-COLONEL E. G. RUSSELL, M.B., B.Sc., I.M.S., *President.*

LIEUTENANT-COLONEL D. P. MACDONALD, M.D., I.M.S.,

GEORGE WATT, M.B., C.M., C.I.E., *Honorary Secretary.*

Letters regretting inability to attend were read from Major D. Prain, I.M.S., and Rai Bahadur Kanny Lall Dey, C.I.E.

98. ***Indian Addendum to the British Pharmacopœia of 1898.***—With reference to the concluding paragraph of the Proceedings of the Eleventh Meeting (*page 65*) the Honorary Secretary placed on the table the reply that had been received from the Government of India to the Committee's letter No. 26 of the 23rd March 1899. That reply (*letter No. 755 of the 4th May 1899, Appendix, page 316*) furnishes the Report and Appendices that had been prepared by the Pharmacopœia Committee of 1894. The papers in question were carefully examined and freely discussed by the Members of Committee. Ultimately the unanimous opinion was expressed that the views already set forth in paragraph 97 of this Report, more especially sections 3 and 4 (pp. 59-60), to a very large extent met the case. The Honorary Secretary reminded the Members that the deliberations recorded during their eleventh sitting were based purely and simply on the papers that had reached them regarding a proposed Addendum to the British Pharmacopœia of 1898, and were therefore prior to their having any official knowledge of the existence and action of the Committee of 1894.

BRITISH PHARMACOPŒIA.

Conf. with pp. 59-65, 83-90, 313-39, 489-91.

Committee of 1894.

It would now appear that the "Indian Government Committee of 1894" was not called upon to report on the indigenous drugs of this country that might be recommended as substitutes for the drugs imported from Europe. In that light, therefore, the Members of this Committee believe that the Pharmacopœia Committee of the General Medical Council may have inadvertently erred in regarding the Madras list as authorized by (in other words furnished as the result of the united deliberations of) the "Indian Government Committee of 1894." Moreover, as already pointed out (*paragraph 97, sections 6 and 7*), an undue proportion of the indigenous drugs recommended by the Madras College authorities are of purely local interest

Duties of

as might indeed have been anticipated in a list prep[illegible] officers very possibly anxious to advance the interest in their [illegible] Province. While holding that opinion, the Members of the Central Indigenous Drugs Committee nevertheless regard the Madras list as a valuable contribution of suggestions, which, had it been utilised along with similar suggestions from each province in India, might have resulted in the production of an Imperial list. But they have no hesitation in affirming that neither the Madras list by itself nor any Imperial compilation could or should be made the sole justification of specific

Reputed Merit.

pronouncements on the substitution of drugs of mere reputed, for those of ascertained, merit.

Conf with pp 30, 38, 47, 50; App., pp 149, 153, 209, 211, 229 39, 257-267, 387-418.

The Committee further think that the encouraging results already obtained in their enquiry into **Adhatoda Vasica** (a drug not mentioned in the Addendum) affords direct evidence of the imperfect knowledge that exists regarding the indigenous drugs of this country and of the necessity for concentrated and continuous enquiry on the lines already initiated, before any list of drugs can or should receive the authoritative position of being published, even as an Appendix to the British Pharmacopœia. This Committee are unable at all

Opinions.

events to offer opinions on any one drug or any selection of drugs, the properties of which have not been established by chemical, therapeutical and physiological tests, and they would further point out that that view of the case has already been accepted by the Government of India Resolution No. $\frac{18 \text{ Medical}}{643-661}$, dated 31st July 1896, paragraph 2, section 4 (*see Appendix, page 163*), and that it is for the purpose of organising such tests and collating such evidence that this Committee exists. But while the Members of this Committee refrain

Criticisms.

from offering any direct criticisms on the proposed Indian Addendum to the British Pharmacopœia, they are of opinion that if the General Medical Council cannot be persuaded to defer publication of an Indian Addendum, this Committee's Classified List (*Appendix, pages 179-84*) is very much to be preferred to that given in the proposed Addendum.

Reply

The Honorary Secretary was accordingly desired to frame a reply to be sent to the Secretary to the Government of India on the above lines and to submit the same to the President for approval, before being issued. It was also resolved that very possibly the best answer that could be sent to the Government of India, regarding the proposed Addendum, would be to furnish an advance proof of the Committee's Report and its appendices, up to, and including, the Meeting of the 20th March 1899. The Honorary Secretary was accordingly directed to withhold issue of any reply to the Government of India, pending his being able to procure from the press the necessary proof copy that should go as an enclosure to the Committee's reply.

99. *Addendum referred to the Provincial Committees.*—The Committee then took up the question of the submission of the papers above reviewed for the consideration of Provincial Committees. The Government of India in their letter of the 6th March 1899, (*Appendix, page 313*) specially asked that the criticisms and suggestions of all the Provincial Committees should be obtained and furnished to the Government of India with the view to the proposed Addendum being made suitable for the requirements of India. The Honorary Secretary was accordingly desired to frame a letter to the Madras Committee that would fully and pointedly deal with all the issues under consideration. The letter was to conclude by asking the Madras Committee whether or not the list "A," which had been prepared by the College authorities in 1894, had been taken into consideration when, on the 28th of April 1898, the question of revising the Central Committee's Provisional Classified List had been dealt with by them.

Submission to Provincial Committees.

Whether after mature deliberation they were still prepared to accept the amended list framed by the Central Committee, especially in the light of its more direct applicability to India as a whole.

Whether, in view of the greater importance now attached to the preparation of a List of Indigenous Drugs, since it would appear likely that it may be employed as the basis of a special Indian Addendum to the British Pharmacopœia, the Madras Committee would desire to recommend other additions than were furnished by their Resolution of the 28th April 1898 (*see Appendix, page 281*), also their Resolution of 29th May 1899 (*see Appendix, page 355*).

Whether the Madras Committee concur with the Central Committee in the belief that until the indigenous drugs of India have been submitted to chemical, physiological and therapeutical investigations, no enumeration should (or rather could) be authoritatively advanced as indicating substitutes for European drugs, the exact properties and actions of which are fully understood.

Substitutes.

It was agreed that the letter to the Madras Committee should conclude with the remark that the Central Committee presume it was very possibly with this conviction in mind that the Madras Committee recorded the observation regarding the necessity that existed to separate facts from pure opinion and truth from fiction (*see Appendix page 324*).

Truth from Fiction.

It was also agreed that a copy of the letter to Madras might be issued to all the other Provincial Committees with the request to favour the Central Committee, at an early date, with their views on the questions raised. In other words they were to be asked whether they had any additional observations to make to the opinions already expressed by them on the selection of indigenous drugs, seeing that

it was now contemplated to frame an Imperial list for publication as an Indian Addendum to the British Pharmacopœia.

100. ***Correspondence with Professor John Attfield.***—The Honorary Secretary read two letters which he had received from Professor John Attfield, Editor of the proposed revision of the British Pharmacopœia. He also placed on the table the reply which he had sent. While concurring in the unofficial action taken by the Honorary Secretary, the Committee were of opinion that, since the question of an Indian Addendum had been submitted to them officially by the Government of India, their reply to Professor Attfield and to the General Medical Council, had better pass through the Government of India. It was accordingly agreed that no useful purpose would be served by publishing the above correspondence, even were authority to do so forthcoming. The correspondence dealt mainly with the 1894 action of the Madras authorities, and the list of 38 indigenous drugs which they had furnished and which apparently had been made the chief source of information in framing the draft of the proposed Indian Addendum to the British Pharmacopœia.

General Medical Council.

101. ***Colonel C. J. H. Warden's Opinion on the Publication of Pharmacopœias.***—In this connection the Honorary Secretary desired to remind the Committee of the opinions expressed by their former colleague, Colonel C. J. H. Warden, M.D., I.M.S., (*Appendix, page 150*)—opinions which it would be noted were expressed some time before the subject of a special Indian Addendum to the British Pharmacopœia had been brought to their attention. The Honorary Secretary read the passages as follows:—

"I agree generally with Dr. Watt's remarks regarding Branch Committees. I consider, however, that we are not going quite the right way to work. We are going to repeat for the third time the experiment of *recommending* certain drugs for use. The experiment first suggested by the Editor of the *Bengal Pharmacopœia* in 1844 was the utilisation of a considerable number of drugs long used by Native practitioners, but not generally recognised in pharmaceutical works. Waring in 1868 in the *Pharmacopœia of India* again drew attention to certain indigenous drugs which might be used in lieu of imported ones. The practical outcome of the two pharmacopœias is that, 52 years after the publication of the first one, fewer indigenous drugs appear to be used. In my opinion it amounts to waste of time to compile Pharmacopœias or to recommend lists of drugs as substitutes for imported articles, if we omit to teach men the use of such substitutes clinically."

Compilation of Pharmacopœias.

Colonel Warden's Remarks, the members agreed, were well worthy of the most careful consideration, especially in the light thrown on them by the controversy regarding the desirability of

THE BRITISH PHARMACOPŒIA.

publishing a special Indian Addendum to the British Pharmacopœia. The danger in so doing, it was held, lay in the apathy thereby likely to ensue. The British Pharmacopœia had published a list. Let those who think fit try the drugs there enumerated.

The Honorary Secretary said there was a distinct danger that that frame of mind would in India take the place of the present desire for more precise and definite information, should the British Pharmacopœia publish a special Indian Addendum. The President remarked that the present Central Indigenous Drugs Committee, with its corresponding Provincial Committees, was created by the Government of India very largely in consequence of the recommendations of the Calcutta Medical Congress of 1894. The Congress recognised that what was wanted was original research and definite knowledge regarding the indigenous drugs of India. The publication of even a list of indigenous drugs as an Appendix to the British Pharmacopœia would stand a great risk of hampering and stultifying these Committees. It would very possibly throw the chances of real progression (on the lines desired by the Medical Congress) back another half century. It was unanimously agreed that were it possible for a useful list of serviceable substitutes to be published now, the necessity for the machinery of special Committees would practically be thereby terminated. Once a list had been published it would become nobody's special duty to verify the opinions given and, in Dr. Warden's significant words, we should very possibly simply repeat the experiment of recommending certain drugs, but in fifty years' time thereafter Indian medical men would in all probability be found to be using fewer indigenous drugs and knowing less about them, than at the present day.

Creation of the System of Committees.

Calcutta Congress.

102. *Bel Fruit (Ægle Marmelos)*.—The Honorary Secretary pointed out that although the subject of Bel had been freely discussed on many previous occasions it had been omitted from the Classified List. It was resolved that it should be added to page 182 under the heading of Astringents owing to its being regarded as a specific in dysentery.

Bel Fruit *Conf with Report, pp. 8, 11, 17, 27, 61; App., pp. 117, 120, 132-40, 145, 182, 309.*

103. *Preparations to be Recommended—Liquid Extracts*.—In continuation of paragraph 89 Colonel Macdonald drew attention to the fact that although mention had been made on several occasions of the desirability to substitute Liquid Extracts for the Tinctures proposed in the Classified List (and issued to hospital and dispensaries in the case of five drugs under observation), no resolution had been arrived at. It was pointed out that Dr. Dey (*paragraph 19*) had recommended a liquid extract of *Kurchi* bark. After some further discussion it was agreed that Colonel Macdonald should be asked to revise the Classified List, correcting, so far as

Liquid Extracts, *Report, pp. 8, 14, 17, 54; App., pp. 179 83, 303.*

was possible, the preparations to be made in future to the standard of Liquid Extracts of one in one.

The President then referred to the seeds of *Kurchi* and said that apparently Indian works on this subject advocated that these should never be administered in the form of a dry powder. He said that in dysentery the seeds would seem to be given for the most part in decoction. This was prepared as follows: ½ to 3 drachms of the seeds were placed in 12 oz. of water, boiled down to 4 oz. and strained. The fluid thus obtained was given in one dose and this was repeated every morning.

Preparations

104. ***Progress Report on the Drugs under Investigation—Calotropis.***—The Honorary Secretary pointed out that the dose of Calotropis had been left an open question (*Para. 20*). This had been subsequently practically decided (*Para. 91*), but it was resolved that in future issues of this drug, the doses to be recommended should conform to the practical experiences now recorded in the clinical returns printed in the Appendix (*pages 439-58*).

The Honorary Secretary next drew attention to the fact that in all the experiments already conducted with Calotropis, the species employed had been C. procera. He explained that there had now been procured a good supply of the root bark of C. gigantea. It was resolved that in any future experiments with this drug, a fluid extract of C. gigantea might be employed.

Supply

It was also pointed out that in the original scheme for the investigation of Calotropis it was contemplated to obtain the bark from the more important centres where either or both species were found (*see Appendix, pages 262-64*) The object was to ascertain by chemical, and if need be by clinical, tests, the age of plant, season of year and locality that afforded the most useful supply. The Honorary Secretary said that he was in correspondence with Madras and Bengal on the subject, and that the collection of the root barks would very shortly be quite complete. He had, however, furnished the Imperial Institute with a series of all the samples received up to date and was in hopes of much useful assistance from the report that Professor Wyndham R. Dunstan might shortly be expected to make. It seemed probable that useful practical discoveries may be made, if indeed they do not necessitate further clinical tests than the somewhat disappointing results already received. It might be said that in the opinion of native practitioners Calotropis bark holds a much higher position in the treatment of dysentery, than the clinical reports to hand so far would seem to justify.

Practical Results

104(*b*). ***Podophyllum Emodi.***—The Honorary Secretary pointed out that paragraph 89 says that the question of whether

PODOPHYLLUM.

Bombay should re-perform clinical experiments with this drug was left for future consideration. He accordingly suggested that the Committee should now decide whether or not the Bombay reports already furnished should be regarded as sufficient for the purpose of this enquiry.

It was agreed that for the present the Bombay returns, recorded in the Appendix (pages 214-223), might be accepted as sufficient. The Honorary Secretary then placed on the table two papers that he had received on the subject of Indian Podophyllum. These were:—

"Chemical Investigations of Indian and American Podophyllum" by Wyndham R. Dunstan, F.R.S., and Thomas Anderson Henry (*Chemical Society*, *1898*)

"Physiological action and therapeutic properties of Podophyllum" with special reference to Indian Podophyllum by Hector W. G. Mackenzie, M.A., M.D., and Walter E. Dixon, B.Sc., M.B. (*Edinburgh Medical Journal*, *1898*.)

Valuable Contributions.

He drew special attention to the fact that these very valuable and exhaustive contributions practically bring the enquiry on the subject of Podophyllum within measurable distance of completion. They confirm in a remarkable manner the results of the clinical tests made in India, under the direction of our various Provincial Committees. It was concurred that the Committee are, therefore, now in a position to announce to the Indian people that we possess a substitute for the American root, not only identical in its physiological and therapeutical properties, but in some respects superior to the resin that is being imported into India. "The Indian Podophyllum," say Drs. Mackenzie and Dixon, "is an active purgative and a useful therapeutic agent; that it may be substituted for **P. peltatum**, but it is important that the physician should know which sample he is prescribing, as the Indian variety is nearly twice as physiologically active as the American."

Actions.

"The active principles contained in the crude resin are two substances: (*a*) crystalline podophyllo-toxin; (*b*) podophyllo-resin, both of which act as excellent laxatives in small doses, without secondary constipation or other objectionable symptoms."

"Although both these substances act very similarly on the alimentary tract, it is only the podophyllo resin which exerts a true cholagogue effect, which shows itself rather by a large increase of the solids secreted than by an increased quantity."

The Honorary Secretary remarked that he hoped he might be pardoned for taking a peculiar interest and pleasure in the enquiry into this drug. Over 20 years ago he had collected Podophyllum emodi in Pangi. In 1887 he drew the attention of the late Dr. W. Dymock of Bombay to the desirability of the Indian root being investigated, as a possible source of the medicinal resin.

Dr. Dymock was good enough to say he would be glad to examine the root. The Honorary Secretary was able to furnish Dr. Dymock with a few pounds of the root which he collected on the Shalai Hill near Simla in 1887, and again in Kullu in November 1888. Mr. D. Hooper, at Dr. Dymock's request, examined the second sample and his report was so very hopeful that sample after sample had been procured and sent to manufacturers both in India and England. No opportunity had in fact been lost in pushing this drug to public attention, and it may now be said that the Central Indigenous-Drugs Committee of India with the valuable co-operation of Professor Wyndham Dunstan, Scientific Director of the Imperial Institute, London, have brought the enquiry to a most satisfactory conclusion.

Unknown to the Natives.

But it is somewhat significant that the first indigenous drug investigated by this Committee should be one wholely unknown to the natives of India. Professor Wyndham R. Dunstan has been misinformed when he says that "the rhizomes have long been used in Indian medical practice for the same purpose (as that for which the allied American plant Podophyllum peltatum is employed in Europe and America)." The natives of India know of Podophyllum as a drug prescribed by European doctors.

It was accordingly resolved that at an early date it would now be desirable to publish in *The Agricultural Ledger*, for the information of the public, the more important facts brought to light.

Chemical Examiners.

104 (*c*). ***Adhatoda Vasica.***—The Honorary Secretary drew attention to the fact that Dr. Warden's letter of 5th February 1898 (*Appendix, page 232*) suggests that the Committee should ask Government for permission to engage the attention of Chemical Examiners on the investigation of indigenous drugs. It was resolved that, so far as Adhatoda was concerned, Mr. Hooper might be asked to continue the examination of that drug. Mr. Hooper had in fact in a measure (*Appendix, page 292*) already complied with the Committee's wishes; and his report was read with much interest. The Honorary Secretary remarked that he agreed with Dr. Warden, however, that the question should be raised of our right from time to time, to invite the assistance of all Government Chemical Examiners. We may still continue to utilise Mr. Hooper's services, but there is work for all and more. It was accordingly unanimously resolved that the Government of India might be asked to move the Local Governments to permit the Chemical Examiners to be *ex-officio* members of the Local Committees and the Calcutta Examiner a member of the Central Committee.

The clinical results with Adhatoda (*Appendix, pages 387-418*), Dr. Watt remarked, are in many respects encouraging. The question

of the discovery of the season of year and of the locality where **Adhatoda** should be collected, embraced by the Committee's Resolution, paragraph 67 (*e*), had still to be dealt with. The Honorary Secretary, therefore, formally moved that practical effect be given, at as early a a date as possible, to the recommendations contained in paragraph 67 (*e*) regarding **Adhatoda Vasica**. Further, that a new preparation be issued to all trial hospitals based on **Colonel Macdonald's** proposals in his letter of the 4th January 1899 (*Appendix, page 303*). These recommendations were agreed to.

It was noted that **Mr. Hooper** had shown us that the most convenient parts of the plant for medicinal purposes were the leaves. We have now to discover at which season of the year the leaves are richest in the alkaloid and from which area it had best be collected—a dry or a moist region—and what effect cultivation had on the yield of the alkaloid. It was accordingly resolved that **Mr. Hooper** be asked to continue his investigations on the lines indicated and also with the object of discovering the most convenient and economical method of separating the alkaloid (*Vasicine*) with a view to therapeutic investigations being subsequently conducted with the pure alkaloid. Leaves.

104 (*d*). ***Kino.***—In continuation of the remarks under paras. 76 and 92 the Honorary Secretary next submitted a most admirable series of samples of this drug. These embraced a botanical specimen of the plant, a longitudinal section of a tree (some six feet in length), showing the method pursued in tapping; a jar of the liquid obtained from the tree: and a large quantity of the resin carefully prepared from the fluid. These had been supplied by the Forest Officer of Malabar. KINO. *Conf. with pp 5, 44, 56, 100, 120, 127 133, 142, 276 79.*

In this connection the Honorary Secretary invited attention to the papers recorded in the Appendix, (*pages 276-79*) and asked whether the Committee were willing that Kino should be included in the list of drugs to be investigated. It was not included (**Dr. Watt** explained) in the Provisional List, from the idea that its properties are well known. But we are having the drug made in a manner never before shown in Europe. It is believed to be much purer than the ordinary commercial article. Difficulty may therefore be experienced in introducing it to trade and to our hospitals, and it seems a duty that devolves on this Committee, with equal urgency with the discovery of new or useful indigenous drugs, to make known new and improved methods and conditions of well known trade articles, as also regular Indian supplies of drugs in a pure state. Supply.

It was resolved that this question should be dealt with in conjunction with other drugs such as Aconite, etc., etc, that would fall under the same category.

INDIAN HENBANE.

104 (*e*). ***Hyoscyamus muticus***—Indian Henbane. The Honorary Secretary next desired permission to refer briefly to the new form of Henbane that he had been instituting enquiries into, in his capacity of Reporter on Economic Products. He would give the history of this enquiry in the fewest possible words. In a letter received from the Hon'ble Mr. H. E. M. James, C.I.E. (Commissioner of Sind), mention was made incidentally of an intoxicant used in that province. Specimens were called for, and these proved to be the plant mentioned above. In due course a fairly large quantity of the drug was obtained and a portion of that supply was forwarded to the Imperial Institute (on the 15th September 1896) for favour of report. Professor Wyndham R. Dunstan and Mr. Harold Brown of the Imperial Institute recently furnished their report and this has been published in *The Agricultural Ledger*. The Honorary Secretary added that it was perhaps sufficient therefore to record that these distinguished Chemists had discovered that the alkaloid in **Hyoscyamus muticus** was "chiefly, if not entirely, *hyoscyamine*." "There is no evidence," they write, "of the existence in this sample of **Hyoscyamus muticus** of any mydriatic alkaloid other than hyoscyamine. We believe that the plant will prove to be an important source of this alkaloid, since it can be isolated from it with far less difficulty than from ordinary Henbane (**Hyoscyamus niger**) which also contains the alkaloid *hyoscine*, and often *atropine* in addition."

Sind.

Investigated.

Important Source.

The Honorary Secretary added that we have here another valuable indigenous drug, that is quite unknown to the Natives of this country but one which nevertheless should be included, along with Podophyllum and Kino, as a drug to be investigated and officially reported on by the Indigenous Drugs Committee.

It was resolved that the above remarks regarding henbane should be recorded in the Proceedings.

OFFICINAL DRUGS.

105. ***Drugs Officinal in the British Pharmacopœia***—The Honorary Secretary next desired permission to raise the question of the desirability of including in the investigations of the Committee all Indian medicinal substances, whether already officinal in the British Pharmacopœia or not. Dr. Watt said that he had drawn attention to this subject on a former occasion (*para. 54*), but he now thought it desirable to obtain a definite expression of opinion and ruling of Committee. It seemed to him a meaningless distinction to restrict "Indigenous Drugs" to articles not officinal in the British Pharmacopœia. The examples of Podophyllum, Kino and Hyoscyamus, just alluded to, were much to the point. The enquiry into Aconite which is being conducted in the office of Reporter on Economic Products, had already abundantly shown th[illegible]ve as much to learn about the indigenous Aconites, as

about any other indigenous drug. Even had the enquiry so far as it has gone not revealed the existence in one species of an alkaloid hitherto unknown and quite distinct from *Aconitine*, we ought to regard investigations that would establish the region of supply of the most useful species; that would furnish rapid methods of recognition of the true article and its adulterations: or the seasons of collection: the methods of preservation: the price and agencies through whom a constant supply could be obtainable, as problems quite as important as the investigation of possible additions to the Pharmacopœia or the discovery of substitutes for British Pharmacopœia drugs. It may be added that **Aconitum ferox**, *Wall.*, *var.* **spicata**, is the *Bikh* or *Bish*; **A. ferox**, *Wall.*, *var.* **laciniata** is the black-*bikh*; **A. ferox**, *Wall.*, *var.* **atrox** (*sp. Wall.*) is the white-*bikh* (the most-highly prized form); and lastly that **A. palmatum**, *Don*, is the *Bikhma* or *Jadvar* of Indian authors on pharmacy.

Sources of Supply.

Forms Indentified.

Besides Aconite, Podophyllum, Kino and Hyoscyamus there are many other substances that should be similarly investigated. It would, Dr. Watt urged, be a mistake to allow the honour of leading in such enquiries to pass to others, simply in consequence of what, in his opinion, should be regarded as an artificial and injurious restriction, established to some extent by the Committee, on the scope of its own investigations.

After a full discussion of all the issues, it was resolved that in future the limitation to enquiries to be prosecuted should be fixed by the term "Indigenous." And it was pointed out that this view had already been accepted by the Government of India in their Resolution No. 24 of the 31st October 1896, para. 2, Section 12 (*See Appendix, page 163*).

Limitation "Indigenous."

106 ***Standard Samples.***—The subject of the issue of Standard Samples to the Committees and to Medical Schools and Colleges, in accordance with paras. 62 and 86 came up for final consideration. The Honorary Secretary proposed that the Committee should procure certain sizes and shapes of bottles. That the crude drugs and medicinal preparations be issued in these uniformly, to all Medical Colleges and Schools in India. That a printed label be attached to each bottle, etc., giving the name of the drug, its action, nature of preparations recommended, doses of each and names of some of the principal diseases for which it may be used.

STANDARD SAMPLES.

Conf. with pp. 31, 52, 56, 96, 170, 308-312.

For this purpose it would very possibly be necessary to obtain the authority of Government of India for the purchase of a supply of bottles. If preferred, authority might simply be granted for the Reporter on Economic Products to include these in his Annual Indent for European stores. But this would necessitate the Home Department being asked to enquire at the Revenue and Agricultural

Bottles Necessary.

Department if any objection existed to that course being pursued. It was agreed that the stocks of the drugs, presently under investigation, be issued before the idea of registered standards be lost sight of. It should be urged that by far the most hopeful way of obtaining any practical results, in the direction of a more extended use of indigenous drugs, would be to show the students at our Medical Colleges and Schools typical samples of all the Indian substitutes for the European drugs, that had been investigated by the Indigenous Drugs Committee. This recommendation will be found to be in confirmation of Colonel Warden's note (*Appendix, pages 150-51*) already read. Especially his remarks commencing "In my opinion, it amounts to a waste of time etc., etc., if we omit to teach men the use of such substitutes clinically."

Clinical Instruction.

107. ***Relation of the Bombay Committee to the Madras and Central Provinces Committees.***—Para. 67 resolves that when the Central Committee has occasion to deal direct with the Central Provinces or with Madras, copies of its Proceedings should be sent to Bombay.

So far as can be discovered, this ruling has been lost sight of and it is accordingly desired that orders of Committee are necessary whether a letter should now go to Bombay Committee explaining the omission and forwarding (in the form of copy of the report) all papers that have transpired. It will be seen that the Madras Committee's Report (*Appendix, pages 355-57*) practically declines to do any more work, unless sanction be obtained from the Government of India for one or two medical officers to be specially deputed to devote their whole time to the investigations proposed by the Central Indigenous Drugs Committee.

Whole Time Investigations.

It is, moreover, not quite clear that the Government, or this Committee, have ruled (or that it would be advisable that they should rule) that Madras and the Central Provinces be subordinate Committees to Bombay. All that has taken place would seem to be that the Bombay Depôt is recommended to prepare certain drugs and to issue the supplies of these to Madras and the Central Provinces; the Bengal Depôt supplying the rest of India. It was accordingly resolved that the subordination of Madras and the Central Provinces to Bombay was exclusively in respect to Bombay having to prepare and issue in special cases the drugs intended for trial at the hospitals of Madras and the Central Provinces.

FAILURE OF COMMITTEES.

108. ***Failure of the System of Local Committees***—But there is still a further issue raised in connection with para. 67 of the Report, *viz.*, the proposals contained in paras. 5 and 6 of Colonel Parker's letter of the 8th October 1897 (*Appendix, page 211*). Dr. Parker there practically suggests that in the

event of a difficulty arising, such as that indicated with Madras, the Indigenous Drugs Committee should restrict demands for reports to one or two hospitals in each province. The Honorary Secretary held that, under the circumstances narrated by Madras (and which he feared were applicable more or less to the whole of India), it would be distinctly preferable to obtain reports from one hospital in each province, where a certain officer had practically received direct orders from Government that these experiments were to constitute a distinct and important part of his duties at that hospital, rather than that the Committee should get a dozen reports (such as the majority to hand) written either by Native hospital assistants (who, it might be urged, are in many cases hardly qualified to judge of the actions of the drugs supplied) or when written by superior officers, are far too frequently framed in an evasive spirit. With one or two exceptions (notably in the case of Bombay) the reports to hand are most unsatisfactory and would not justify the Central Committee in advancing definite statements (except perhaps in the case of **Podophyllum**) for or against any one of the five drugs at present under investigation. Evasive Reports.

The Honorary Secretary said that he was accordingly prepared to move that the Central Committee go up to Government of India at once, with a full statement of the case. He maintained that if the Committee do not do so, and later on, after much time and money had been wasted in fruitless efforts to get Local Commitees to meet and to reply to letters or to perform the investigations required of them, the Central Committee would be blamed and justly so. Blamed in Future.

Dr. Watt further observed that the Local Committees had failed signally and totally to meet the expectations formed, by the Central Committee, when they desired the Government of India to have a system of Local Committees organised throughout India. Not one Committee, for example, would comply with the request to examine and amend if necessary the Central Committee's Provisional List of drugs until they had been two or three times reminded, and even then their replies were for the most part that they had no suggestions to offer. In perfect fairness it might in fact be said that with the exception of Bombay, not one of the other Provincial Committees had shown the least sympathy with the work. The Honorary Secretary therefore moved that the Central Indigenous Drugs Committee ask Government to specially appoint one officer in each province to act directly under this Committee and to perform the experiments required. Signal Failure. Individual Action.

It was, however, decided that owing to the unavoidable absence of two members this recommendation should be left over for further consideration at next meeting before any definite ruling was made.

CLINICAL REPORTS AND RETURNS. *Conf. with pp 350-481.*

109. ***Submission of Clinical Reports.***—The Honorary Secretary explained that up to date several of the Local Committees had still not furnished their reports on the five drugs presently under investigation *viz.*, **Adhatoda, Alstonia, Picrorhiza, Calotropis** and **Podophyllum.** He urged that it would be most unwise to issue a further series of drugs until all the returns had been obtained on those already in the hands of Provincial Committees. To do otherwise would soon result in the most complete and hopeless state of confusion. The object aimed at by the enquiry was to obtain simultaneous returns, so that the results arrived at in one province might be corroborated or refuted by another. Ultimately it was contemplated (*para. 45, Resolution No. 8, see Appendix, pages 161 and 165*) as the Members of Committee would recollect, to publish in *The Agricultural Ledger*, for the information of medical officers throughout India, the final conclusions formed by the Central Committee, regarding each indigenous drug as investigated. Until all the returns had come to hand, the Central Committee could neither issue other drugs nor frame a statement that could be regarded in any sense as final.

Final Statements Impossible.

Numerous Reminders.

The Honorary Secretary informed the meeting that notwithstanding numerous reminders returns had not been obtained from Bengal, the North-Western Provinces, the Central Provinces, nor from Burma. But since complaint had been made in some few instances that the time allowed was too short for the investigation of the five drugs under consideration, it was agreed that the 1st October 1899 should be fixed as the final date for submission of reports.

SECOND BATCH.

110. ***Second Batch of Drugs for Investigation.***—The Honorary Secretary announced that of the five drugs selected for investigation (*para. 96*) he had already obtained a good supply (25 lb) of Black Catechu or Cutch—(**Acacia Catechu**) from the Director of Agriculture, Burma, and that the same had been forwarded to the Medical Storekeeper for manufacture into tincture. It was resolved that Black Catechu should not be issued by itself but that a delay should be made till all the five drugs (*Para. 96*) were ready for issue.

111. ***Special Communications.***—The Honorary Secretary desired permission to lay on the table what appeared to be an advertisement on the value of a drug, in which **Hydrocotyle asiatica** was stated to be the chief ingredient. This had been sent to him for submission to the Committee. It was resolved that the papers in question should be filed along with other particulars regarding the drug named.

The Honorary Secretary next placed on the table a series of notes on the indigenous drugs of the Darjeeling District. These had been

prepared by Mr. A. C. Hartless. The Committee desired their thanks to be conveyed to the contributor since the notes were thought to very likely prove of value as each of the drugs in question came up for consideration

112. *Drugs Assigned to Special Local Committees.*—The Honorary Secretary invited attention to the fact that in the Classified List (*Appendix, pages 179-84*) certain drugs were left to the Local Committees, more immediately concerned, for special and local enquiry.

These were:—

1. **Strophanthus sp.** by Burma.
2. **Corchorus olitorius** by Bengal.
3. **Symplocos racemosa** by Bengal.
4. **Corchorus fascicularis** by the Central Provinces.
5. **Naregamia alata** by Madras.
6. **Butea frondosa** seeds by Madras (*see Report, para. 77 (a), page 44*).

Letters had been issued to the Honorary Secretary, Central Provinces, regarding No. 4 (*viz., No. 90 of the 20th April 1898, page 209, and a reminder No. 94 of the 20th July 1899*), and to Madras regarding No. 6 (*viz., No. 40, dated 8th April 1899, Appendix, page 282*). It will be seen that the Madras Committee allude to **Butea frondosa** seeds, in their Report of the 29th May 1899 (see *Appendix, page 355*), but apparently no action has been taken.

113. *Communications with the Chambers of Commerce.*—The Honorary Secretary desired permission to lay on the table a series of letters that he had had occasion to address to the various Chambers of Commerce throughout India. These had been written in his capacity as Reporter on Economic Products. It would be found that a section of each of these letters was devoted to the indigenous drugs that might be regarded as more or less peculiar to the provinces named. These letters and classified lists of products were perhaps too voluminous for publication in the Report of this Committee, but it seemed probable that they might prove of some small assistance to the Members. Taking them province by province, it would be found that the following statement represented the Indian trade in drugs:— TRADE IN DRUGS.

1. *Bengal and Assam*—55 drugs mentioned. The more important might be said to be Cinchona, Aconite, Chiretta Cassia Lignea, Coptis, Leeches, Indian Hemp, and Opium. There are also large chemical works in Bengal that supply many of the mineral drugs used in pharmacy.
2. *Bombay.*—64 drugs specially mentioned. Bombay is moreover the great emporium for drugs in India and a large import trade exists in Central Asiatic, Persian Gulf and

other drugs that are again re-exported all over India or to foreign countries. This is more especially the case with the gums, resins, inspissated saps (e.g. Gum Arabic, Tragacanth, Myrrh, Bdellium, Hing and Hingra (Asafœtida), Galbanum, Camphor, etc.) In the returns of the trade of Bombay frequent mention is also made of Malwa Opium, *Karu* root, (Picrorhiza) Nux-vomica, Saffron, Senna, Aloes, Squills, etc.

3. *Karachi.*—28 drugs are mentioned. Karachi participates largely in the import trade from the Persian Gulf. But the following may be specially mentioned:—Colocynth, Henbane, Delphinium, etc.

4. *Madras.*—74 drugs are enumerated. The articles of this class that figure most largely in the commercial returns of South India are Cinchona, Senna, Pepper, Cardamoms, Nux-vomica, Aloes, Sappan-wood, Sandal-wood, Coscinium, Naregamia, Ipecacuanha, Jalap and Squills. Perhaps after Cinchona, Senna and Nux-vomica are the chief drugs of South Indian trade.

5. *Burma.*—9 articles are mentioned. No medicinal product seems to be a special article of trade from Burma. Garjan (*Eng* and *Kanyin*) oils, Chaulmugra oil, Cajuput oil, and Cassia Lignea are, however, largely obtained from that Province.

6. *Upper India.*—The Chamber of Commerce of Upper India (which holds its meetings in Cawnpore) deals with the resources of the North-Western Provinces, the Punjab, and to a large extent of the Central Provinces, Central India, Rajputana and Sind. It thus practically embraces the entire range of the Himalaya west of Nepal. East of Nepal to Assam the products drain into Bengal. In consequence of this circumstance, the drugs to be enumerated under the sphere of influence of the Upper India Chamber of Commerce are the most extensive and most diversified of all the Chambers, though the total trade in these drugs is infinitely less in value than that in Bombay. The list embraces 86 important drugs. Of these the following may be specially mentioned:—Aconite, Atropa, Gentian, Hyoscyamus niger, Onosma, Picrasma, Picrorhiza, Plantago, Podophyllum, Rheum, Swertia, Asparagus, Berberis, Crocus, Taraxacum, Valerian and Viola.

There being no other business, the meeting was dismissed.

E. G. RUSSELL,
President,
Indigenous Drugs Central Committee.

The 7th February, 1900.

February 7th, 1900.

The Central Indigenous Drugs Committee met at the Office of the Reporter on Economic Products to the Government of India, Indian Museum, Calcutta, at 4-30 P.M.

Present:

LIEUTENANT-COLONEL E. G. RUSSELL, M.B., B Sc., I.M.S., *President.*

LIEUTENANT-COLONEL D. P. MACDONALD, M.D., I.M.S.
MAJOR D. PRAIN, M.A., M.B., F.R.S.E., I.M.S.
RAI CHUNI LAL BOSE BAHADUR, M.B., F.C.S.
GEORGE WATT, M.B., C.M., C.I.E., *Honorary Secretary.*

113. ***Death of Rai Kanny Lall Dey Bahadur, C.I.E.***—The Honorary Secretary in opening the proceedings said that the painful duty of recording the death of our late distinguished colleague, Rai Kanny Lall Dey Bahadur, would be seen to be the first item on the agenda. Dr. Dey died on the 16th August 1899, at the age of 68 years. He was far advanced in the study of the drugs of India before most of us had even thought of taking up the medical profession. He became a Professor of Chemistry in 1862. Throughout his long professional career he took a keen interest in indigenous drugs and for half a century almost his name became intimately associated with every enquiry of this nature that took place in Bengal.

Notice of Dr. Dey's death had been communicated to the Government of India by our President's letter of the 5th September, and the acknowledgment No. 1647, dated the 29th September, stated that the Government of India "had received with regret the news of the death of Rai Kanny Lall Dey Bahadur." At the same time the Government of India announced that they were pleased to appoint Rai Chuni Lal Bose Bahadur, M.B., F.C.S., a Chemical Examiner to the Government of Bengal and Assistant Professor of Chemistry, Medical College, to be a Member of the Central Indigenous Drugs Committee in succession to Dr. Dey. App. p. [illegible]

It was unanimously agreed that an expression of the regret felt at the loss of our able and distinguished colleague should be recorded in the Proceedings of this Committee.

114. ***Addendum to the British Pharmacopœia.***—The Honorary Secretary remarked that the proceedings on this subject subsequent to our last meeting, had perhaps better be briefly reviewed BRITISH PHARMACOPŒIA.

by him, while at the same time the issues that have arisen and which await solution might be dealt with *seriatim*:—

Conf. with pp. 59-69, 67-71, 313-39, 489-491.

114. (1) At our last meeting it will be seen that after perusal of the papers on the subject of the Indian Pharmacopœia Committee of 1894, the Central Indigenous Drugs Committee framed and issued its reply to the Government of India's letter No. 381, dated the 6th March 1890 (*viz., letter No. 10, dated the 22nd August 1899, Appendix, page 317*).

(2) Thereafter, acting on the request of the Government of India, the question of the Addendum was referred by us to the Madras Committee, in a somewhat elaborate printed letter (*No. 97, dated the 2nd August 1899, Appendix, page 319*).

(3) Three replies (No. 17, dated 17th August; No. 19, dated 1st Septemberth; and No. 2226, dated 26th October, *Appendix, pages 329-33*) have been received from the Madras Committee which, while offering various explanations, may be said to practically accept the Central Committee's Provisional List as preferable to that framed by the Pharmacopœia Committee of the General Medical Council.

Communications from Madras

This Committee's letter to Madras and the first reply thereto have been furnished to the Government of India as enclosures to the letter above mentioned (*No. 10, dated 22nd August*). The Honorary Secretary added that the subsequent communications from Madras had not been furnished to the Government of India and he asked orders as to whether this was necessary.

(4) Shortly after issue of the Committee's letter to Madras all the other Provincial Committees were communicated with (*letters Nos. 101—107, dated 11th August 1899, Appendix, page 334*)? They were furnished with a copy of the letter to Madras and were asked to inform the Central Indigenous Drugs Committee whether they desired to offer any additional remarks on our Provisional List (to those already furnished by them and recorded in the Proceedings and Appendices) with a view to the list being amended, and in due course communicated to the British Medical Council. Replies have been obtained (somewhat dilatorily) from all provinces except Bombay, Bengal and the Central Provinces. From Assam, No. 331, dated 24th August; from the North-Western Provinces an unofficial note dated 21st October; from the Punjab, No. 13, dated 8th September; and from Burma, No. 2533, dated 27th October.

Replies from other Local Committees.

These replies accept the Central Indigenous Drugs Committee's Provisional List as preferable to that given in the proposed Indian Addendum to the British Pharmacopœia, but offer no further suggestions. This remark applies to all the provinces except Assam. The letter from the Assam Committee offers suggestions regarding

15 drugs, of which 9 are already in our Classified List and the balance have been freely discussed by the Central Committee and either rejected (as in the case of Abrus precatorius, *see Appendix, pages 120 and 127*), or reserved for future consideration. It was accordingly resolved that while the Assam communication should be recorded in our Appendix, no modification of the Classified List was for the present necessary. The Assam Committee's previous communication on this subject (*Appendix, page 205*) was to the effect that they had "no suggestions to offer, nor any additions to make to the list of drugs enumerated." Their present communication it was agreed should be regarded as in continuation of that report. BRITISH PHARMACOPŒIA.

114. (5) The three provinces that have still not furnished replies to the Central Committee's letter of the 11th August 1899, on the subject of the Addendum to the British Pharmacopœia, have been reminded as follows :—Letters to—

Central Provinces, No. 2, dated 18th January 1900.
Bengal, No. 3, dated 18th January 1900.
Bombay, No. 8, dated 2nd February 1900.

(6) The Honorary Secretary continued his review of proceedings by remarking that it would thus be seen that we are even now still unable to furnish the Government of India, in reply to their inquiry (*No. 381, dated 6th March 1899, see Appendix, page 313*), with the views of all the Local Committees, on the subject of the proposed Addendum. The Members of Committee accordingly concurred in the opinion that our inability to do so afforded an additional and very conclusive evidence against the publication, even as an Addendum or Appendix to the British Pharmacopœia, of any list of Indian drugs. They maintained that all that ever had been obtained (or as matters stand at present) is ever likely to be obtained, by persons framing lists of Indian drugs, are a few isolated personal opinions and for the most part opinions of men who possess comparatively little or no practical acquaintance with either the drugs or the diseases for which they are recommended. Anything like a combined pronouncement from every part of the Indian Empire, has never been secured and is only likely to be arrived at by great patience and much forbearance on the part of a central organising agency, such as that over which this Committee presides. And this state of affairs, the Members think it as well to record, is neither due to the want of ability nor to the want of interest, but is purely and simply the result of the excessive official burden thrown on our medical men. Imperfect Returns. Combined Pronouncement.

(7) Reverting now to the more recent communications obtained from Madras, the Honorary Secretary desired permission to invite attention to the letter No. 2226 of the 26th October 1899. That letter, he remarked, might be viewed as emanating from Major Crawford

personally though forwarded by the President of the Madras Provincial Indigenous Drugs Committee for information. It seemed to call for careful consideration and a specific reply to each of the points raised. It was read to the Committee by Major D. Prain and freely discussed by all Members.

Second Existence.

Conf with App., pp. 381-33

The Honorary Secretary then said that he would like to read a note he had prepared on the subject. It would seem, he said, that for some reason or other the old Madras Committee of 1894 (assuming that there ever had been such Committee) had suddenly sprang into a second existence. The original members (two in number) being in Madras and holding now the self same appointments as in 1894, would appear to consider that in consequence they still exist as an official Committee authorised by Government. These officers would seem to hold that their functions were not terminated by the submission of the final report of the Government of India's Pharmacopœia Committee, under whose auspices they acted in 1894. It cannot, however, be discovered that there ever was any official authority either from the Government of India, or from the Government of Madras, or from the Indian Pharmacopœia Committee of 1894, for the appointment of a Madras Sub-Committee. Nor can any reference be found to corresponding Sub-Committees in the other provinces of India, and it seems fairly conclusive that there never were any. The Madras so-called Committee originated as follows: —

No Official Sanction.

Origin of Madras 1894 Committee.

On the 12th February 1894 the Secretary to the Indian Pharmacopœia Committee (then sitting in Calcutta) addressed "a demi-official letter" to Colonel W. Price, Principal of the Medical College. That letter was "by a resolution of the College Council, referred for favour of action thereon to the Professor of Materia Medica and the Lecturer on Botany in the College." Their reply to that demi-official letter was the report of the Madras Committee of which so much has been written. Even the resolution of the Council of the Madras Medical College makes no mention of the officers, who were deputed to frame a reply to the demi-official letter above quoted, as having been created into a Committee. But even had the Council done so, a Committee of a College could hardly be spoken of as a "Government Committee." But we are now asked by the resuscitated Committee to reply to the questions. "What is the connection between these two Committees? Are they supposed to be working together and have they the same objects in view? Is the Central Committee in correspondence with Professor Attfield or not?"

114. (8) It was resolved that the Madras Local Indigenous Drugs Committee should be officially informed that the above communication had been received by the Central Indigenous Drugs

Committee under an endorsement dated 26th October 1899. The points raised in that letter had been carefully considered, but since the Central Committee had no previous knowledge of the existence of a second Madras Drugs Committee, the matter had been referred to the Government of India for decision.

114. (9) The Honorary Secretary submitted a printed report of progress made with the scheme for an Indian and Colonial Addendum to the British Pharmacopœia. This had presumably been supplied by Professor Attfield, but as it was not accompanied with a letter, it was not known by whom it had been actually furnished. The paper in question refers in special terms to the assistance that had been rendered to Professor Attfield by several Madras officers. The passage in question was here read by the Honorary Secretary:— Actions of Madras Committee.

"The officers who, at the instance of the Madras College Council, drew up the third report just mentioned, were Surgeon-Captain (now Surgeon-Major) F. J. Crawford, M.D., Professor of Materia Medica in the College, and R. Hollingsworth, Esq., Lecturer on Botany. With these authorities there is now (1899) associated Lieutenant-Colonel H. St. Clare Carruthers, the Government Medical Storekeeper, a highly skilled enthusiast in all matters pertaining to the treatment of drugs and the production of efficient pharmaceutical preparations. Through the Surgeon-General with the Government of Madras, C. Sibthorpe, C.B., voluminous correspondence has passed, between the Editor and Major Crawford, who, in a letter received at the Medical Council Office on November 5, 1899, says, in relation to the whole of the Indian drugs of the draft *Addendum* and their preparation: "I shall soon write to you further and perhaps be able to state when a final communication may be expected from us." Conf. with letter on page 400

"Surgeon-General Sibthorpe, C.B., also forwards a statement showing that Picrorhiza Kurrooa, *Royle*, Adhatoda Vasica *Nees*, and Alstonia scholaris, *R. Br.*, are being investigated by an Indigenous Drugs Committee in Madras."

(10) It was held by the Members of the Central Indigenous Drugs Committee that the Resolution of the Government of India, No. 18 Medical—643-661, dated the 31st July 1896, which created both the Central and Madras Indigenous Drugs Committees, justified the Central Committee in the expectation that all the information (on the subject of indigenous drugs) possessed by the members of the Provincial Committees or which might be procured by them in consequence of enquiries instituted by the system of Indigenous Drugs Committees, was solely and entirely at the disposal of the Central Committee, up to the date of the submission to the Government of India of their report. Lieutenant-Colonel H. St. Carruthers, I.M.S., App., p. 167

Conf. with App., p 388. and Major F. J. Crawford, I.M.S., alluded to in the above passage, are members of the Madras Provincial Indigenous Drugs Committee. The Proceedings of the Central Committee, by paras. 22 and 56, have been retained as confidential. Since copies of our proceedings have been duly communicated to the Madras Committee, it is difficult to understand how Surgeon-General C. Sibthorpe, C.B., was able to communicate to Professor Attfield the results of the enquiries instituted in Madras into the therapeutic properties of **Picrorhiza Kurrooa, Adhatoda Vasica and Alstonia scholaris.** Conf., para 114(9)

Useless State of Affairs

114. (11) After discussing these and all other points raised by the Madras letter No 2226 of the 26th October 1899, and Professor Attfield's "Report of Progress," it was resolved to place on record the unanimous opinion of this Committee that it was an absolutely impossible and useless state of affairs that there should or could be two local Indigenous Drugs Committees sitting in Madras at one and the same time, whether their operations were friendly or inimical.

It was further resolved that this matter should be treated as urgent. Should the Government of India concur with the Central Indigenous Drugs Committee, it seemed desirable that steps be at once taken to obviate any possible misapprehension that might arise through Major Crawford and other Madras officers, having communicated direct with the General Medical Council. Such action in the opinion of this Committee ought not to be published to the world as having been authorised either by the Government or by the Indigenous Drugs Committee.

Preferable not to Publish

(12) A unanimous opinion has been expressed by the Central Indigenous Drugs Committee and practically by every one of its Provincial Committees, that it would be preferable not to publish at present an Indian Addendum to the British Pharmacopœia. Obviously, therefore, whether Major Crawford and his colleagues be correct or not, in regarding themselves as a Madras Committee whose functions did not terminate with the submission of their 1894 report, it would be most unwise to permit them to publish opinions which might hereafter be construed as having been expressed by the Government of India's Indigenous Drugs Committee.

(13) It is understood, that Professor Attfield (Editor of the proposed Indian and Colonial Addendum to the British Pharmacopœia) is fully aware of the existence of the Central Indigenous Drugs Committee with its organisation of Provincial Committees. But instead of entrusting any enquiries that may be found necessary to the central agency of that system of Committees and accepting the decision arrived at by that agency, Professor Attfield, it would appear,

prefers to ignore the existence of the Central Committee and to open up direct dealings with individuals or with Provincial Committees.

114. (14) In the letter from Major Crawford (No. 2226, dated the 26th October) it is stated (on what authority the Members of this Committee are unable to discover) that Professor Attfield affirms that "The Indian and Colonial officials here" (? London) "encourage direct communications with the Medical Council." In his report of progress with the Addendum Professor Attfield gives this Committee a subordinate position to that assigned to our Madras Committee and speaks of the Central Committee as "the Indigenous Drugs Committee of Calcutta." He would seem apparently to be quite oblivious of the fact that there is a Calcutta Indigenous Drugs Committee, *viz.*, our Bengal Provincial Committee. Bengal Provincial Committee.

The Members of the Central Indigenous Drugs Committee are unanimously of opinion that so long as the Government of India may desire them to continue the enquiries, entrusted to them by the Resolution of the 31st July, direct communication between the General Medical Council or Professor Attfield and the provincial committees of India or the individual members of these committees, is most undesirable, and they would recommend the Government to take into consideration the desirability of prohibitory orders being issued. Direct Communications.

(15) While opposed to the opinion that a useful purpose would, at present, be served by the publication of an Indian Addendum to the British Pharmacopœia, this Committee desire to repeat that their Provisional List of Drugs is much to be preferred to that given in 1894 by Major Crawford and Mr. Hollingsworth. In this opinion they have now the support of all the provincial committees who have furnished replies on this subject. Should, therefore, the General Medical Council overrule the opinion of the undesirableness of an Addendum being published, the Central Indigenous Drugs Commitee would recommend that their list of drugs be substituted for that shown in the draft of the proposed Addendum. But they are also unanimous in thinking that it is most unwise to endeavour to precipatate an authoritative publication. Practically nothing more is known regarding the Indigenous Drugs of India than will be found in Waring's Indian Pharmacopœia and in the Pharmacographia Indica. However extensive a correspondence may be initiated between Professor Attfield and Indian Medical men, no material additions to our knowledge of the drugs of India will be thereby attained. It will no doubt take some years before the task entrusted by the Government of India to this Committee can be brought within measurable termination. But it is believed that, at no previous period of Indian history, has the subject of the investigation of the drugs of this country been placed on a more

Madras List.

Central Committee's List.

No Material Additions.

satisfactory basis of possible solution than at present. The object aimed at by the General Medical Council is in consequence in a more hopeful position than in 1894, and an unavoidable delay is all that is necessary to give practical effect to the conception of an Imperial Pharmacopœia, in which India may take an honourable position. But to forestall and precipitate action would, in the opinion of this Committee, be to court a rapid and complete destruction of all that has been done and contemplated.

Forestall Action.

115. ***Submission of Clinical Returns.***—It will be seen that in the Appendix, pages 211-262 and again 350-82, the clinical returns are given on the first batch of drugs issued by this Committee.* The Honorary Secretary remarked that it might serve a useful purpose to exhibit the returns received up to date of last meeting, before placing on the table the subsequent returns which he had received.

These are as follows:—

Investigation in BOMBAY	(General)	pages	350-53
Ditto	**Adhatoda**	do.	387-92
Ditto	**Alstonia**	do.	419-20
Ditto	**Calotropis**	do.	439-45
Ditto	**Podophyllum**	do.	211-25
Investigations in MADRAS	(General)	pages	354-62
Ditto	**Adhatoda**	do.	393-401
Ditto	**Alstonia**	do.	421-22
Ditto	**Calotropis**	do.	446-47
Ditto	**Picrorhiza**	do.	401-62
Ditto	**Podophyllum**	do.	475-76
Investigations in ASSAM	(General)	pages	363-66
Ditto	**Adhatoda**	do.	402-06
Ditto	**Alstonia**	do.	423-28
Ditto	**Calotropis**	do.	448-50
Ditto	**Picrorhiza**	do.	463-67
Ditto	**Podophyllum**	do.	477-80
Investigations in the PANJAB	(General)	pages	367-70
Ditto	**Adhatoda**	do.	407
Ditto	**Alstonia**	do.	429
Ditto	**Calotropis**	do.	451
Ditto	**Picrorhiza**	do.	468
Ditto	**Podophyllam**	none	

(1) *Investigations in the North-Western Provinces.*—The Honorary Secretary in submitting the communications received from these provinces said he desired permission to point out that none of the replies to hand were from European Surgeons. They were in fact

* Since the date of this meeting Burma and the Central Provinces have furnished returns. The former in time to be placed with the other provincial returns in pp. 329-38, and the latter by themselves in pp. 497-503.—*Hon. Sec.*

RETURNS FROM THE N.-W. PROV.

reports that would very possibly have to be characterised, as of comparatively little value. They are the personal opinions of subordinate officers who confess that they have given remarkably little attention to the subject entrusted to them by their superiors. They do not favour the Committee with individual records of actual tests nor do they furnish their reports on the special forms supplied by this Committee. These forms were carefully framed to ensure attention being given to the points of greatest importance in the trials that might be performed. Discursive notes of personal opinion, such as those from the North-Western Provinces, are worse than useless—they are misleading.

Personal Opinion.

In one instance the Civil Surgeon of Benares appears to have referred to the Assistant Surgeon the question raised by this Committee regarding the Addendum to the British Pharmacopœia. It is believed that the Assistant Surgeon is not a member of the Provincial Committee and had better not have been consulted on the point in question. The reply, however, affirms that certain of the 38 drugs in the Madras list (above discussed) "have been found by me to be nearly equal in their efficacy as substitutes to the officinal drugs named," (*see Appendix, page 376*). Here again we have a personal opinion that may or may not be of value. Moreover, that reply is quite irrelevant to the subject actually under consideration, *viz*., the investigation of the five medicinal preparations furnished by this Committee.

The Civil Surgeon of Lucknow in the same way handed the five medicinal preparations supplied by this Committee over to the Assistant at the King's Hospital. His notes are such as might easily have been written had we furnished no drugs for investigation. The remarks already offered apply to the Lucknow. In addition to these, two reports have come to hand from Agra of an even more unsatisfactory nature than those of Benares and Lucknow (*see Appendix, page 373*).

Unsatisfactory Returns.

To keep up uniformity, it was agreed, however, that these returns, would have to be recorded in the Appendix to this Report. It was also resolved that the Honorary Secretary's observations regarding the returns supplied by North-Western Provinces should be recorded.

(2) *Investigations in Burma.*—Numerous excellent reports have been received that confirm the general conclusions arrived at in Bombay and Madras. These, it was resolved, should be printed in the Appendix.

Incorporated with those shown opposite.

(3) *Central Provinces.*—The Honorary Secretary explained that a fairly extensive correspondence had ensued since last meeting, but no reports up to date.

Conf. with pp. 197 303

(4) *Bengal.*—No reports up to date.

The Honorary Secretary said that he was still in hopes the Central Committee might obtain reports from the Central Provinces and Bengal, but it was most disappointing that the Central Committee, sitting in Calcutta, cannot secure, from Bengal, reports of experiments performed,—the province above all others that might have been anticipated to respond most promptly and fully to our requirements.

Publication of Report. Conf. with pp. 187 88.

116. ***Volume One of the Report of Central Indigenous Drugs Committee.***—The Honorary Secretary next explained that in connection with the discussion regarding the Addendum to the British Pharmacopœia and the possibility that it might be necessary to publish at an early date, Volume I of this Committee's Report, of a proof copy had been issued to each Local Committee for favour of corrections or additions. This issued under cover of letters Nos. 124-31, dated 16th September 1899. Replies had been obtained from the North-Western Provinces, from the Central Provinces, and from Assam. These Committees offer no suggestions. Neither Bombay, Madras nor Bengal have replied.

Two Sections.

(1) *Form the Report should Assume.*—It was agreed that we should not delay any further in the publication of a first volume of the Committee's report and therefore the Honorary Secretary remarked that he desired instructions as to the form it should assume. He explained that it would of course be referred to two sections—(*a*) Report and (*b*) Appendices,—but he desired to point out that the appendices have been so far recorded more or less in sequence of date of receipt and in direct relation to each meeting. (*See Report, para. 84*). This makes the subject matter very scattered. Accordingly the Honorary Secretary asked whether the Committee would desire to have it re-arranged, as far as might be possible. The objection to attempting a complete re-arrangement lies mainly in the fact that some letters deal with more than one subject and can be classified with difficulty. But all correspondence and reports, for example, on the Indian Addendum might be given together: all correspondence on Local Committees: on the Provisional List, etc., etc.

Major D. Prain thought that although doubtless a re-arrangement would make the report and its appendices more useful, he was not sure that the advantage gained would in any way compensate for the very great labour that it would entail on the Honorary Secretary.

Object Lesson.

The question of the utility in publishing such returns as had been furnished by the North-Western Provinces was again reverted to when it was finally agreed that they afforded a good object lesson on the difficulties that had to be faced in attempting a task such as that laid, by the Government of India, on the Central Indigenous Drugs Committee. That Committee is bound to fail or succeed according

to the extent in which the local authorities accomplish the work entrusted to them. So far failure must be admitted as having been more evident than success.

(2) *Conclusions Arrived at Regarding Drugs Experimented with.*—The Honorary Secretary next asked whether the members would like to frame a note on each of the five drugs investigated, a note that would embrace all the returns to hand and give the final conclusions arrived at. For example, at page 418 might be given a review of the clinical returns shown on the succeeding pages on **Adhatoda Vasica**; at page 438 a review on **Alstonia**. Conclusions arrived at.

The President remarked that while there were many notable exceptions, the majority of the clinical returns were such that definite conclusion could not be framed. **Colonel Macdonald** concurred that it was safer to publish the returns and allow the persons who consulted the report to form their own conclusion regarding the drugs investigated. He felt certain that before we could advance any definite opinions we would have to ask certain hospitals to carefully re-perform the experiments that had already been conducted. It was possible that a fluid extract of **Adhatoda** (*see Appendix, page 303*) might be found more satisfactory than the tincture reported on. Sufficient good results had been obtained with that drug to justify further experiments, but not to publish definite statements as to its therapeutic value. Therapeutic Value.

(3) *Number of Copies to be Printed.*—With regard to the size of the edition to be published, the Honorary Secretary suggested that the Committee would have to address the Government of India and obtain definite orders. A large number might very possibly be required for presentation in India and a fairly extensive number of copies for presentation in Europe, America and the Colonies. The Honorary Secretary thought that an edition of 500 copies might easily enough be disposed of, the more so since in addition to presentation copies some no doubt would have to be offered to the public on sale. Number of Copies.

It was finally resolved that the Honorary Secretary should push forward the preparation of a first volume (to embrace the proceedings of the present meeting), and when a clean proof had been procured, to submit the same to the Government of India with a view to obtaining their orders on the number of copies to be printed.

117. ***Drugs Selected for Second Issue.***—These have been enumerated in paragraph 96. It will also be seen that paragraph 109 refers to the undesirableness of issuing new drugs till all the returns have been received regarding the first batch. As already explained, two provinces, *viz.*, Bengal and the Central Provinces, have furnished no reports on clinical experiments with the five drugs of the first batch. Second Batch of Drugs.

The action already taken with the five drugs selected for the second batch, the Honorary Secretary explained, was as follows :—

Conf with para. 96; App., pp 119, 181, 340.

117. (1) *Catechu* **(Acacia Catechu).**—We have received from Burma 25 lbs. (black, Reg. No. 11979) and from North-Western Provinces 25 lbs. (pale, Reg. 13033). Of the black catechu or cutch 16 lbs. were sent to the Medical Storekeeper for the purpose of being made into a tincture. The tincture was received on 23rd May and is still in stock. The tincture was ordered to be prepared prior to the instructions to issue in future fluid extracts. The Honorary Secretary said that the orders of Committee were desired as to whether the tincture should now be issued or whether a fresh supply of black catechu should be procured from Burma and made up, as stated in the revised version of the Provisional List, in the form of an extract. The 11 lbs. of the Burma Cutch had been retained in stock in order to be issued as standard samples of the crude drug actually used by us in the preparation of the medicine issued to hospitals.

Of the Kumaon Cutch none had as yet been issued to the Medical Stores for manufacture into fluid extract.

The Honorary Secretary desired permission to point out that the method of preparation of Burma black cutch as compared with the Kumaon (*Kath*) pale cutch was such that the two articles very possibly may be found different therapeutically. In view of that fact he asked whether it would be desirable to issue a liquid extract of both.

Conf with paras 25, 26, 39, 96; App., pp. 116, 181,

(2) **Cæsalpinia Bonducella.**—The Honorary Secretary continued his remarks and explained that he had procured about 11 lbs. of the seeds of this plant from Bengal (Reg. No. 12149). None of that supply had as yet been sent to the Medical Storekeeper Orders are therefore desired as to action to be now taken. Would the quantity mentioned suffice or would it be desirable to procure more before any be sent to the depôt for manufacture into liquid extract.

Conf. with paras 96, 97 (App.,) pp 118, 153, 153

(3) **Ipomœa hederacea.**—It was stated that there had been received 20 lbs. of the medicinal seeds of this plant from Bengal (Reg. No. 12148).

Conf. with paras. 38, 96; App., pp. 118, 157, 180.

(4) ***Andrographis paniculata.***—The Honorary Secretary said that he had received 1 maund of this plant from the North-Western Provinces, but that it had turned out not to be the drug in question but a form of chiretta. But meantime a large supply (40 lbs.) of the fresh (and correct) plant had come to hand from Bengal (*Register No. 13022*), so that the Honorary Secretary was now in a position to give immediate effect to any orders he might receive as to the disposal of the drug.

(5) Lastly, one maund of the fruits of **Embelia Ribes** had been procured from the North-Western Provinces (*Reg. No. 12147*). Conf. with para. 96, App., pp. 155, 180.

The Honorary Secretary added that it would thus be seen that, so far as preliminary arrangements were concerned, the Committee were now in a position to issue their orders, knowing that these could instantly be given practical effect to, so far as his part of the preliminary work was concerned.

117 (6). *Discussion on Second Batch of Drugs.*—The President remarked that he was reluctantly constrained to recommend that we should issue no more medicinal preparations until a full statement of the results already attained, and our reflections thereon, had been laid before the Government of India. UNSATISFACTORY POSITION.

He was assured that he was giving expression to the unanimous opinion of the members in affirming the present position of this Committee to be one far from satisfactory. The Committee in fact has practically come to an *impasse.* After devoting a vast amount of time and labour to evolving a plan of campaign, and after elaborating the details of organisation, this Committee finds itself brought up sharply by the very imperfect (or rather entire absence of any serious) response elicited from the Provincial Committees to whom of necessity had been committed the practical work, *viz.*, the task of conducting clinical investigations and of reporting results. The chief purport of all the preliminary labours, in the way of correspondence and organisation may be said to be to elicit clinical and other practical investigations. The Central Committee now finds, with regret, further progress blocked just at the stage when it seemed to have a right to expect its preliminary labours to yield practical results.

In this connection the Honorary Secretary (reviewing the present position) pointed out that the Central Committee have already recorded the fact that after all the labour and money expended in procuring and identifying the crude drugs; in framing and printing definite forms to be used in recording clinical observations; in supplying carefully prepared tinctures for use in hospitals, to say nothing of the care and attention that had been devoted to every detail, two provinces had furnished no replies at all and two, if not three, others had given replies that were next to useless. After the labour entailed by many meetings, the Central Committee framed a Provisional List of the drugs that seemed most hopeful of good results. That list might easily have been extended to ten times its length. The Committee purposely excluded all drugs that might be supposed to give little indications of possible value. It had excluded also all drugs that might be regarded as fairly well understood already. The result had been a brief list of Preliminary Arrangements. Provisional List.

the drugs that would seem to call for immediate investigation. The Provincial Committees were asked to add to the list any drugs of local interest that they would like to have immediately investigated. But with few exceptions the provisional list had been accepted without any amendments being suggested.

Minimum Labour.

Good and useful preliminary work had no doubt been accomplished The Central Committee had striven to impose a minimum amount of labour on the provincial authorities. There could, for example, have been little difficulty in furnishing them at once, with medicinal preparations from the entire series of 48 indigenous drugs shown in the Provisional List. It had been decided to impose on the local authorities the labour of investigating only five at one time. What was the outcome of all these endeavours? Practically nothing.

The President accordingly moved that this Committee discontinue to issue any other drugs until they obtain the views and wishes of the Government of India on the existing state of affairs.

The Honorary Secretary explained that he had put down, on the agenda, the question of a revision of the constitution of the Committees, for consideration after the submission of the work that had been accomplished, since the date of last meeting. His object in proposing to take that subject up last of all was because of the light thrown on the necessity for a revision of the constitution of the Committees through the current work.

Impersonal Committees.

Impersonal Nature of Committees.—Colonel Macdonald agreed with the President that Committees were far too impersonal to expect much practical good to come of them. It would be infinitely preferable in his opinion to have one or two individuals in each province. or, for that matter, in only the larger towns, such as Calcutta, Bombay, Madras, Lahore and Rangoon, specially selected and by orders of Government to them personally be entrusted with the conduct of such experiments as the Central Committee may desire.

Resolution Regarding Second Batch of Drugs.

Second Batch of Drugs to be Detained.—It was, however, agreed that the discussion of the revision of the system of Provincial Committees should be left over till the Honorary Secretary had submitted all the current business that had been recorded for consideration. The President's resolution was then put and carried unanimously, *viz.*, that no further action should, for the present, be taken in preparing and issuing a second batch of drugs.

118. ***Issue of Standard Samples and Supply of Bottles, etc., for the same.***—The Honorary Secretary explained that this subject had been raised in para 62; was referred to again under paras. 86 and 94; and on still a later occasion under para. 106.

The Central Committee had already accepted the recommendation (*see Appendix, page 150*), to place in all Medical Schools and Colleges in India, Standard Samples of the drugs investigated by the system of Indigenous Drugs Committees. Orders are now desired as to the steps to be taken to give practical effect to that resolution. The Honorary Secretary said that he had arranged on the tables, all the stocks in hand of the raw products and of the therapeutic preparations from these, already issued. He desired the Committee to inspect these and to favour him with instructions as to the disposal of the surplus stock that had been reserved for the purpose mentioned. *Conf. with pp. 31, 52, 80, 71, 170, 308-12.*

118 (1) *List of Medical Schools and Colleges.*—It would seem desirable that a list be framed of the Indian Schools and Colleges to which samples should be issued. Perhaps Colonel Macdonald, who is familiar with the institutions in the Bengal Command (to which drugs are issued), might draw up a list of Schools and Colleges. Our various local Committees could no doubt furnish us with a list of the Schools and Colleges to which Standard Samples had better be issued. It may perhaps be open to doubt, however, whether the Committee should issue any such drugs, without direct authority from the Government of India. So far as can be discovered, the Committee have not as yet addressed the Government of India on the subject and, since financial obligations (for which no provision has been made) will be involved, a letter had better be issued on the subject, in which the Committee should invite not only approval of the principle involved but confirmation of the selection of Schools and Colleges to which it is proposed to issue Standard Samples. Schools and Colleges.

(2) *Supply of Bottles and Labels.*—The next point that calls for decision, assuming that the issue of Standard Samples be approved by Government, would be the supply of bottles and the printing of labels to be shown on these bottles. It will be seen that in para. 106 of our last meeting this subject was discussed. The Committee came to no definite conclusion, and the Honorary Secretary desired to know if he might address the Government of India on the subject of the supply of bottles. Five drugs are ready for issue and each of these requires two bottles, one for the raw product and one for the medicinal preparation. Assuming that there are in all India 50 Schools and Colleges to which such samples should be issued, that would mean 500 bottles required for the first batch of drugs, 250 of the one size and 250 of the other. An annual supply of 500 bottles would very possibly be by no means an exorbitant estimate. Bottles and Labels.

Assuming that the question of the supply of bottles had been arranged, the next point of importance would be the framing of the labels to be shown on these bottles. This the Honorary Secretary said he considered an exceedingly important and delicate matter. The names of diseases, for which the drugs might be prescribed, and the doses to be given in these diseases, might no doubt be framed in conformity with the clinical returns to hand.

The Honorary Secretary said he would add in conclusion that as the drugs may deteriorate unless properly stored, there should be as little delay as possible. It was, however, resolved that until the larger question of the re-organisation of the Provincial Committees had been dealt with, the issue of Standard Samples had better be held in abeyance.

118. (3) *Foreign Museums, etc.*—In connection with the supply of Standard Samples of drugs, applications had been received from Professor Ralph Stockman of the Glasgow University (*letter No. 49 of 19th June 1899*): from Dr. H. H. Rusby, Professor of Botany, in the New York College of Pharmacy and a Member of the Committee of Revision and Publication of United States Dispensatory. Both these letters had been addressed, the Honorary Secretary explained, to himself personally, but as they ask for Standard Samples of the Indigenous Drugs of India, he considered that they could be best dealt with by this Committee. The letters in question were, therefore, read and recorded.

It was observed that Professor Rusby wishes to obtain 100 sets of the Indian drugs, more especially botanical samples of these—the object being to place them in the Medical Schools of the United States. The Indigenous Drugs Committee may not be in a position to comply with such a large demand, but the Honorary Secretary said that he would venture to think that a couple of pounds or so of each of the drugs investigated by us might be supplied as a first instalment. Professor Rusby, it would be seen, had asked for certain samples of Cinchona and Quinine, and these have been supplied by Major D. Prain and would be forwarded almost immediately.

Cinchona.

Secure Assistance.

(4) *Objects to be Attained.*—The object to be attained by issuing Standard Samples to foreign institutions was to secure assistance all over the world in the very complicated problem of the chemical, therapeutical and physiological investigation of the drugs of India. The Central Committee cannot have too many possible co-adjutors in this field of enquiry and the Honorary Secretary said he would, therefore, strongly recommend that the Committee should lose no opportunity to open up direct dealings with such men as Professor Rusby and Professor Stockman. It was also explained that the Honorary Secretary was in correspondence with Mr. Holmes, Curator of the

Museum of the Royal Pharmaceutical Society of Great Britain, and had already supplied him with a series of samples of the Aconites which had been investigated in India and by Professor Wyndham R. Dunstan in London. It was agreed that that correspondence had better also be recorded as having been conducted in connection with Central Indigenous Drugs Committee's investigations.

118. (5) *Imperial Institute, London.*—The Honorary Secretary then placed on the table, letter No. 3190-5-8, dated 18th September 1899, from the Under-Secretary to the Government of India, in the Revenue and Agricultural Department. That letter was accompanied with copy of a communication from the Honorary Secretary and Director of the Imperial Institute, London, dated 4th August 1899. Dr. Watt remarked that the Members of Committee were aware, that at the time these communications had been received in India he was on tour. They had been at once forwarded however by him to the President and Members for information and necessary action. As the result it was recorded that the subject had better be brought up at the next meeting of the Central Committee and the papers were accordingly now submitted. Imperial Institute *Conf. with App., pp. 308 ff.*

After being freely discussed it was resolved that certain points raised in these papers did not fall within the cognisance of this Committee, such as the procedure to be followed by the Imperial Institute authorities regarding articles supplied by the Reporter on Economic Products. It was, however, agreed that as the Imperial Institute had already been of great service to the Central Indigenous Drugs Committee, and might in the future be of even still greater assistance, every effort should be made to enlist the continued co-operation of the scientific staff of that Institution. But it was to be clearly understood that this Committee could recognise the Imperial Institute as holding no higher relationship to the Central Indigenous Drugs Committee than that of any of its other foreign correspondents or museums.

With regard to the issue raised by Sir Frederick A. Abel, Bart., K.C.B., in the illustration of *bael* fruit, given in this Committee's letter No. 52, dated the 19th April *1899* (*see Appendix, page 308*), the Members felt surprised that their meaning could in any way have been misunderstood. It was their intention that every person or institution who might co-operate with them should examine not any sample of bael, but the actual one that had been investigated and reported on in India.

It was resolved that the reply to the Government of India should point out that Sir F. A. Abel was labouring under some misapprehension when he attributed the Committee's letter (above cited) to Dr. Watt personally. The letter having been framed in Committee

was only through the accident of his being Honorary Secretary signed by Dr. Watt. The reply to the Government of India was in conclusion to say that the Committee had nothing further to communicate than was already contained in their letter of the 19th April.

Conf. with App. pp. 484-86.

119. *"Hemp Drugs."*—The Honorary Secretary next placed on the table the communications that had passed on the question of the prohibition of the importation of "Hemp Drugs" into Bengal. These consist of a letter from Colonel T. H. Handley, C.I.E., I.M.S., which forwarded a letter from the Under-Secretary to the Government of India, in the Financial Department. The Honorary Secretary remarked that when these papers came to hand he was on tour. He had recorded his views and forwarded the papers to the President. After entering his opinion the President circulated the papers to the Members of Committee. The two official letters issued by this Committee were accordingly framed by Colonel Russell on the recommendations thus recorded. It was resolved that for convenience the official papers on this subject should be given in the Appendix to this Report.

Report, pp. 5, 11, 56, 75: App. pp. 120, 127, 132, 143, 276 79.

120. *Kino.*—In continuation of paragraph 104(*d*) of our Report of last meeting, the Honorary Secretary remarked that he had the pleasure to submit a report from Professor Wyndham R. Dunstan on a sample of Chanda Kino examined. The Members of Committee agreed that much useful information regarding this drug had been brought to light and perhaps that the time had now come when it might with advantage be summarised and published.

Appointments.

121. *Central and Local Committees.*—The Honorary Secretary said that he had now to place on the table certain letters received regarding changes in the Committees. The appointment of Rai Chuni Lal Bose Bahadur to the Central Committee had already been recorded.

Central Provinces.—Major H. E. Banatvala, I.M.S., having gone on furlough, Assistant Surgeon Lakshmi Narayan Choudhuri, Civil Medical Officer, Balaghat, has been appointed a Member and Honorary Secretary of the Committee in the Central Provinces.

Bengal.—In the Bengal Committee Major F. J. Drury had been appointed in succession to Major J. F. Evans, deceased.

Madras.—It may perhaps be pointed out that Mr. D. Hooper would still seem to be regarded as a Member of the Madras Committee. Reference is made to his absence from the meeting of the 29th May 1899 (*see Appendix, page 355*). The Central Committee have received no intimation of Mr. Hooper having resigned his seat on the Madras Committee nor of a successor having been appointed. In a letter from the Honorary Secretary to the Madras Committee,

dated October 26th, 1899, mention is made of Mr. Hooper being a Member of the Madras Committee.

121. (2) *Re-organisation of Committees.*—The Honorary Secretary then remarked that having recorded these changes, the far more important question of the re-organisation of the entire system of Committees had to be discussed.

It will be seen that under paragraph 104(*c*) incidentally mention is made of a proposal that the Chemical Examiners should be *ex-officio* members of the Provincial Committees, the Bengal Examiner being a Member of the Central Committee.

Paragraph 108 deals with the failure experienced by the Central Committee to obtain the information required from the Local Committees, and suggests that this Committee should go up to Government of India with a full statement of the position. A decision was not recorded at last meeting, owing to two Members of Committee having been unavoidably absent.

This subject has already been incidentally discussed in paragraph 117 (6) above, but it is for the Central Committee to decide what is now to be done.

Extract from Proceedings of the Madras Committee.—The Honorary Secretary desired to read to the Members the remarks made by the Madras Committee. These will be found on pages 356-57 of the Appendix (bottom paragraph) as follows:—

"The Local Committee feel it incumbent on them to remark that a more successful way of conducting the investigation would be to depute one or two Medical Officers in each Presidency, who should devote their whole time for a certain period for the purpose. It is impossible to expect first class results under the existing conditions of the investigation. In several of the hospitals in Madras town there is ample facility for putting new drugs to a thorough test, ample material and appliances, but the Medical Officers in charge of them are engaged in a host of other kinds of work, clinical teaching, medical charge of 80 to 100 beds, college lectures, operative work, and various examinations and inspections. The Committee do not think it yet too late to produce results of some value if one or two men were to be *now* appointed to sift the evidence as far as it has gone and devote a few months to separating facts from pure opinion and truth from fiction." Whole time Investigators.

(3) *Whole-time Investigators.*—It was unanimously agreed that there would be no occasion to ask Government "to depute one or two Medical Officers in each Presidency to devote their whole time" to the investigations required by this Committee. But it was concurred that the principle underlying the Madras Committee's recommendation was correct, *viz.*, that certain officers must be directed to give the

subject of these enquiries their special attention. An officer told off to devote his whole time would be next to useless. It was essential that the officer who performed the clinical tests should be in charge of a hospital or certain wards at all events of a hospital, so as to afford him the opportunity required.

Experimenting. *Conf. with pp. 26, 10, 60, 102, 149, 230-32, 356, 370.*

121. (4) *Experimenting not justified.*—The Honorary Secretary next desired permission to read a letter received from Lieutenant-Colonel S. H. Browne, C.I.E., Principal of the Medical College, Lahore. The passage that more especially called for consideration was as follows:—

"In the case of severe forms of fever and other diseases I confess I do not feel myself justified in experimenting with unknown and doubtful drugs when I have others of known and well-established efficiency available." (*Appendix, page 370*).

That passage had been read as an example of the attitude assumed by some of the officers to whom the preparations, issued by the Central Committee, have gone.

(5) *Experiments not attempted.*—The Honorary Secretary remarked that, during his recent tour, he had had occasion to visit one of the largest hospitals in the Bombay Presidency (outside the town of Bombay itself). While in the consulting room he observed the five bottles of tinctures, etc., issued by this Committee. These had never been so much as opened and had been on the table of the room for over a year. The medical officer in charge was asked if he had tried the drugs to which the reply was given that he had not done so.

Procedure.

(6) *Size of Committees.*—It was held by the members of this Committee that the Provincial Committees that have been appointed to act in conjunction with the Central Committee are as a rule far too large. The members are for the most part dispersed all over the province they represent. They are accordingly never able to meet together to discuss arrangements. An Honorary Secretary circulates papers and no doubt almost invariably obtains the acknowledgment—"Seen", above the signatures of the various members of his Committee. It is no one's special duty to take up the enquiry, the burden falls on the Honorary Secretary who in most cases is a junior officer and very possibly not himself in a position to institute any special investigations. The Central Committee are of opinion that this is the state of affairs that prevails in the majority of the Provincial Committees and they regard it as a perfectly hopeless one when actual work and careful work is required.

(7) ***This Result Anticipated.***—The Honorary Secretary next desired to invite the attention of the members to a passage in one of Colonel Parker's letters, dated the 8th October 1897. (*See*

Appendix, page 211). The passage in question would be seen to have anticipated the very state of affairs that has transpired. It may, for convenience, be here recorded :—

"It is found that when the drugs or other articles of medical store supply are forwarded to hospitals for trial and report, there is often much delay at hospitals in the submission of the necessary report, and the delay does not always appear to be due to unavoidable circumstances. The subject seems to be lost sight of, and, when the report is ultimately expedited, the information submitted is not as exhaustive as desirable."

"Should the Central Committee consider that action should be taken at the outset, so as to secure constant attention to the subject on the part of officers in charge of trial hospitals, in view to the submission of reports within a reasonable or definite time after the receipt of the drugs, I would suggest that a nominal list of the trial hospitals be published, and that the officers in charge thereof be directed to pay this subject their special attention, and that they may be required to submit their reports in the full details prescribed by your Committee not later than six months after receipt of the articles."

121. (8) *Personal Investigations*.—The President remarked that Colonel Parker was quite correct. The only satisfactory way to accomplish the task entrusted by the Government of India to the system of Committees would be to prepare a short list of hospitals, specially selected, and to obtain the orders of the Government of India for the officers in charge of these being directed to give this subject their special and personal attention. Personal Attention.

122 *Resolutions*.—It was, therefore, moved and carried unanimously that the Government of India be invited to reconsider the existing arrangement. Should the Government of India find themselves able to concur with the views of the Central Committee it was recommended that they might address the Provincial Governments on the desirability of substituting for Provincial Committees one or two officers in certain important towns who should be directed to give the subject of the enquiries instituted by the Central Indigenous Drugs Committee their very special and personal consideration. It was, for example, thought, that in the case of Calcutta the two Physicians in the Medical College Hospital and the Resident Physician in that hospital would suffice. In other large towns, such as Bombay, Madras, Lahore and Rangoon, it was believed that corresponding officers might easily be nominated by the local authorities Resolution

It was also resolved that the Government of India should be desired (if no objection exists) to take steps to secure the co-operation with the Central Indigenous Drugs Committee of the Chemical Examiners and Medical Store-keepers in the various provinces Chemical Examiners.

Further, that the Bengal Chemical Examiner and the Medical Store-keeper in the Bengal Command should be *ex-officio* members of the Central Indigenous Drugs Committee.

It was further resolved, that should the Government of India concur with these recommendations, the Provincial Committees should be terminated and this Committee henceforth be known as the Indian Indigenous Drugs Committee, in place of its being designated the Central Indigenous Drugs Committee.

There being no other business, the meeting terminated.

D. P. MACDONALD, *President,*
Indigenous Drugs Central Committee.

March 19th, 190

APPENDIX.

APPENDIX I TO PARA. I OF THE REPORT.

RESOLUTION OF GOVT. OF INDIA APPOINTING THE COMMITTEE

No 24 Medical / 793 809

Extract from the Proceedings of the Government of India in the Home Department (Medical), under date Simla the 31st October 1895.

READ—

Letter from the Government of Bombay, No 264, dated the 6th February 1894

Letter to the Government of Bombay, No 224 dated the 11th April 1894

READ also—

Resolution recorded by the Pharmacological section of the India Medical Congress to the effect that the Government of India should consider the desirability of extending the use of indigenous drugs in India

RESOLUTION

In the section of Pharmacology and Indian drugs of the Indian Medical Congress, eight papers were read on the use of indigenous drugs the most important being those by Dr G Watt, M B, C M, F L S, C I E, and by Rai Bahadur Kanny Lall Dey I C.S C I E In his paper on the subject Dr Watt enumerated the names and reputed properties of the drugs indigenous to India and urged the desirability of greater attention being given to the study of such drugs, and Rai Bahadur Kanny Lall Dey made the following suggestions —

(1) that definite pharmacological preparations of certain indigenous drugs should be made at the Medical Store Depôts for distribution to the various hospitals and dispensaries for trial and report, — Definite Preparations

(2) that medicinal plant farms should be laid out in the districts most suited to the plants which it is proposed to grow, and — Plantation

(3) that a drug emporium for India should be established at Calcutta — Drug Emporium

RESOLUTION OF GOVT. OF INDIA APPOINTING THE COMMITTEE.

APPENDIX I

In considering these papers the Indian Medical Congress recorded the following resolution :—

"That it be recommended to the consideration of the Government of India that an extended use of indigenous drugs is most desirable."

Extended use of Indigenous Drugs.

2. The Government of India are advised that the more extended use of indigenous drugs in pharmacological preparations has hitherto been retarded by the circumstance that the sophistication and adulteration of these drugs are carried on so systematically that it is almost impossible to procure them locally in a pure state, and also because there are now available imported remedies of a much more efficient nature. Certain indigenous drugs, which can be obtained pure in the local market and in which adulterations can be detected, are used in the Medical Depôts. In his paper on the subject Rai Bahadur Kanny Lall Dey concludes, from a perusal of the latest list of medical stores for hospitals in Bengal, that only one such drug—namely *chiretta*—is so utilized, but from the list marginally noted of drugs now used in the Medical Depôts, which has been furnished to the Government of India, it will be seen that his information upon this point was imperfect. The Government of India have no doubt that other indigenous drugs would be employed in the Medical Depôts if they could be obtained pure, of a stable character, and at a price not exceeding that at which they can be imported.

List of drugs purchased locally by the Calcutta Depot.

Asafœtida.	Glycyrrhiza root.
Calumba root.	Gum arabic.
Cardamom seeds.	Kino.
Catechu.	Myrrh.
Cinnamon bark.	Nux vomica.
Chiretta.	Senna leaves.
Cubebs.	Anise oil.
Ginger.	Cinnamon oil.
Galls.	Santal oil.
Castor oil.	

Drug of Therapeutic Value. *Conf. with Report, p. 1.*

3. With the information at present available, the Government of India would only be justified in taking such steps as may appear practicable with a view to encouraging the increased use in the Medical Depôts of drugs of known therapeutic value, and perhaps also in sanctioning the manufacture of stable preparations of certain drugs at the Depôts. The Government of India are not at present convinced of the desirability of initiating as a Government measure experiments to test the *reputed* therapeutic value of indigenous drugs. From the correspondence with the Government of Bombay quoted in the preamble to this Resolution, it appears that an attempt was made in this direction in that Presidency, but proved unsatisfactory.

Physiological Experiments. *See p. 26.*

TO PARA. I OF THE REPORT.

RESOLUTION OF GOVT. OF INDIA APPOINTING THE COMMITTEE.

4. The Government of India are, however, anxious to give such effect to the recommendations of the Pharmacological section of the Indian Medical Congress as may be found practicable, and, with this end in view, have decided to appoint a Committee to consider the whole question in a practical way. The Committee will consist of the following members:—

Brigade-Surgeon-Lieutenant-Colonel G. King, M B., LL.D., F.R.S., C.I.E., Superintendent of the Royal Botanical Garden, Howrah, who will serve also as President of the Committee.

Surgeon-Lieutenant-Colonel J. F. P. McConnell, M D., F.R.C.P., Professor of Materia Medica and Clinical Medicine, Medical College, and Second Physician, Medical College Hospital, Calcutta.

Surgeon-Lieutenant-Colonel C. J. Warden, M.D., Medical Storekeeper, Bengal Command.

Dr. G. Watt, C.I.E., Reporter on Economic Products and Officer in charge of the Economic and Art Section of the Indian Museum.

Rai Bahadur Kanny Lall Dey, F.C.S., C.I.E.

5. The points to which the Government of India desire more particularly to invite the attention of the Committee, with a view to their careful consideration, are the practicability, as well as the utility, of— Scope of Enquiry

(a) encouraging the systematic cultivation of medicinal plants indigenous to India;

(b) encouraging the increased use in Medical Depôts of drugs of known therapeutic value; and

(c) sanctioning the manufacture of stable preparations of certain drugs at the Depôts.

Regarding the above the Government of India desire that the Committee should further consider, and report their opinion as to, the action which would be best calculated to give the suggested encouragement. The Committee should further consider, from a practical point of view, the question of initiating, as a Government measure, experiments to test the *reputed* therapeutic value of indigenous drugs. The Government of India, as at present advised, are inclined to the opinion that such investigations can more profitably be left to the enterprise of private individuals. Therapeutic Experiments.

6. The Committee should assemble at Calcutta during the ensuing cold weather, and should, on completing their deliberation

submit their report to the Government of India in the Home Department for consideration.

ORDER.—Ordered that a copy of this Resolution be forwarded to Local * Governments and Administrations, the several members of the Committee, and to the Surgeon General with the Government of India for information.

* With copy of letter from Bombay, No. 264, dated the 5th February 1894, and enclosures.
With copy of letter to Bombay, No. 224, dated the 11th April 1894.

[True Extract.]

L. M. THORNTON,

Deputy Secretary to the Government of India.

BOMBAY RESEARCH LABORATORY.

TO PARA. I OF THE REPORT.

No. 264, dated Bombay Castle, the 6th February 1894.

From—G. C. WHITWORTH, Esq., Acting Secretary to the Government of Bombay, Educational Department,

To—The Secretary to the Government of India, Home Department.

In the Foreign Department letter No. 8381, dated the 7th March 1893, regarding the proposed continuance of the appointment of an additional Professorship of Clinical Medicine and Pharmacology in the Grant Medical College, the salary of which, at the rate of R500 per mensem, was paid by His Highness the Gaekwar for three years, the Government of India proposed that, if this Government concurred, His Highness should be informed that the extension for two years of the period of the appointment was deemed to be too short to be of practical utility, and that the appointment would therefore cease. In their reply No. 1101, dated the 27th May 1893, this Government assented to the answer proposed to be sent to His Highness, and intimated that, if it should appear advisable to continue the Professorship as a provincial charge, proposals to that effect would be submitted. I am accordingly to submit the following application for the favourable consideration of the Government of India.

2. Before the above reply was sent, Mr. F. D. Petit, founder of the Laboratory for scientific medical research in connection with the Grant Medical College, had offered to pay the salary of the appointment, provided Dr. Bahadurji continued to hold it, and Dr. Bahadurji himself had offered to discharge the duties of the appointment without any remuneration if no endowment for the salary could be secured. His Excellency in Council was obliged to decline both the offers, as he could not permit the authority of Government in the matter of appointments to be controlled by a private person, and as, in his opinion, the continued service of Dr. Bahadurji in the College was undesirable.

3. Since the issue of the Government Resolution declining the offers above mentioned, His Excellency in Council has been in communication with the Surgeon-General with the Government of Bombay and the Principal of the College (copies of whose reports* accompany this), and it will be observed that in the opinion of the Surgeon-General and of the Principal of the College there is no necessity for either an additional Professor of Clinical Medicine or

* Letter from the Principal, Grant Medical College, No. 573, dated 11th November 1893.

Letter from the Surgeon-General with the Government of Bombay, No. 8356, dated 25th November 1893.

BOMPAY PHARMACOLOGIST

a Professor of Pharmacology; but the former officer has no objection to the appointment of a well-qualified man as Pharmacologist in the Grant Medical College for a limited period of three years, subject to further orders at the end of that period and full consideration of the results attained.

4 After due consideration of the views of the principal medical advisers of Government, His Excellency the Governor in Council is of opinion that there is a field for pharmacological research which should not be left unexplored, especially when the advantage of a fully equipped laboratory is present, and he has good reason to believe that he can secure the services of a native gentleman qualified for the post, and who is willing to devote his whole time to research His Excellency in Council accordingly proposes to create an appointment of Pharmacologist in the Grant Medical College on a salary of R500 per mensem and to nominate Dr Nassarwanji Fakirji Surveyor, M D, M A, B Sc (Bombay), M R C P (London), D P H (Camb), to the post It is proposed that, as recommended by the Surgeon General, Dr Surveyor should go through a six months' course in pharmacological research in London, and draw pay from the commencement of the course. The appointment will for the present be for three years, subject to reconsideration at the end of that period and while holding the appointment Dr. Surveyor will be debarred from private practice

5 I am accordingly to request that, under Articles 95 and 96 of the Civil Service Regulation, the Government of India may be moved to accord their sanction to the creation of an appointment on R500 per mensem in the Grant Medical College on the terms above stated Provision for the salary has, I am to add, been made in the Provincial Budget for 1894-95 A proposition statement, duly verified by the Accountant General, will follow.

No 573, dated Bombay, the 11th November 1893.

From—Brigade-Surgeon-Lieutenant-Colonel G A. MACONACHIE, M.D, M R.C P., Principal, Grant Medical College,

To—The Secretary to the Surgeon-General with the Government of Bombay.

In reply to your endorsement No 7868, dated 6th instant, on a memorandum No. 2429 of the 3rd idem, from the Secretary to Government, Educational Department, all returned herewith, I have the honour to state that a special chair of Pharmacology is not required in the Grant Medical College, all the pharmacology required, or which can be understood by the first-year students who study Materia Medica, being taught by the Professor of Materia Medica. The

original appointment of Professor of Pharmacology was intended to be for research only, and not for the ordinary teaching purposes of a Medical College. I doubt if any person working in Bombay without skilled assistance and in this climate would obtain any results which would be considered of the least value by the profession at large. Physiological experiments, such as are done by the Pharmacologists. are very difficult and very indefinite in their results owing to the heat destroying the irritability of living tissues so quickly that drugs have almost no time to act. For instance, I have seen the heart of a frog beating at least 48 hours after it was removed from the body in Scotland, whereas in Bombay the Professor of Physiology informs me that it ceases to beat in five minutes, and he finds it very difficult to perform experiments here which can be done in Europe with ease. The result is that a Pharmacologist here must have skilled assistance and the work will be costly. If reliable pharmacological reports are required of Indian vegetable drugs, it would be much cheaper and much more satisfactory to pay skilled Pharmacologists in Europe to investigate them, and then there would be some prospect of medical men in this country trying them on their patients if the report had been satisfactory. At present medical men are much more sceptical of the value of Indian drugs than formerly owing to the many random and incorrect statements which have been published in Indian Medical Journals, and I doubt much whether the statements of a Pharmacologist at the Grant Medical College would restore the confidence in these drugs which was apparently so much more common formerly than it is at present. If, however, it is intended to appoint another Pharmacologist, it is not advisable to call him Professor any more than it is to call the Bacteriologist by that name, and although Dr. Surveyor has had no experience in pharmacological research, probably he would perform such work as could be done here as well as any other native candidate. His reputation in Bombay was more that of a hard student than of a practical man, but apparently from his certificates he has greatly improved in the practical application of his reading.

Physiological Experiments.

No. 8356, dated Bombay, the 25th November 1893.

From—Surgeon-Major-General P. S. Turnbull, M.D., Surgeon-General with the Government of Bombay,

To—The Secretary to the Government of Bombay, Educational Department.

With reference to your memorandum No. 2429 of the 3rd November 1893, I have the honour to forward a report by the Principal, Grant Medical College, Bombay, in which I concur.

BOMBAY PHARMACOLOGIST.

APPENDIX II.

2. In my opinion there is no necessity for either an additional Professor of Clinical Medicine or for a Professor of Pharmacology, and I am unable to recommend a revival of them.

3. But I do not see much objection to the appointment of a well-qualified man as Pharmacologist at the Grant Medical College for a limited period, say three years, subject to further orders at the end of that period and full consideration of the results attained.

4. Whether Mr. N. F. Surveyor "is the kind of person" needed for such an appointment, I am unable to say from personal knowledge, but from enquiries made and the certificates appended to the application, Mr. Surveyor seems to have made good use of the excellent opportunities afforded him of acquiring a knowledge of general Pathology, Bacteriology, and the most recent methods of research, and though, strictly speaking, he has not received training as a Pharmacologist, I think a few months' special training in that department would be sufficient to fit him for the work in Bombay. I, however, agree with Brigade-Surgeon-Lieutenant-Colonel G. A. Maconachie that in the climate of Bombay the Pharmacologist labours under great disadvantage as compared with a similar investigator in Europe, and that the results will always be less definite and reliable.

5. The only object in appointing Mr. Surveyor to be Pharmacologist would be the encouragement of native talent and work, and, should Government think fit to do so on that ground, I see no objection to it, provided the period for which he is appointed is limited. I think, however, it will be well to insist on six months' special training in pharmacological research in London before appointment.

No. 224, dated Calcutta, the 11th April 1894.

From—C. J. LYALL, Esq., C.S.I., C.I.E., Secretary to the Government of India, Home Department,

To—The Secretary to the Government of Bombay, Educational Department.

I am directed to acknowledge the receipt of your letter No. 264, dated the 6th ultimo, requesting that the Government of India may accord sanction to the creation of an appointment of Pharmacologist in the Grant Medical College, on a salary of R500 per mensem, for a period of three years, subject to further orders, after full consideration of the results attained at the end of that period. His Excellency the Governor in Council is of opinion that there is a field for pharmacological research which should not be left unexplored, especially when the advantage of a fully equipped laboratory, such as exists

BOMBAY PHARMACOLOGIST NOT SANCTIONED.

at the Grant College, is present. Dr. Nasarwanji Fakirji Surveyor, M.D., M.A., B.Sc. (Bombay), M.R.C.P. (London), D.P.H. (Cambridge), who, it is said, will be qualified for the work after a special course for six months in London, is recommended for the appointment.

2. In reply I am to invite attention to the opinions expressed by the Principal of the Grant Medical College and by the Surgeon-General to the Government of Bombay, in the letters forwarded by you, that in the climate of Bombay a Pharmacologist would labour under great disadvantages as compared with a similar investigator in Europe, and that results obtained in Bombay would be less definite and reliable than experiments conducted in a cooler climate. I am further to say that the Government of India are advised that the investigations of a Pharmacologist, to be of value, must be conducted with extreme care and with every precaution to exclude fallacious results: and that the conclusions to be drawn from any series of experiments require much thought and discrimination even from the greatest scientists. The professional advisers of the Government of India consider that it would in any circumstances be expedient rather to make provision for the investigation in Europe of the properties of Indian drugs than to attempt experiments in Bombay.

Provision for Pharmacological Experiments

3. In view of these opinions, the Government of India regret that they are unable to recommend the proposal of the Government of Bombay, for the creation of this appointment at public expense, to the Secretary of State, whose sanction would be necessary.

INDIGENOUS DRUGS: Madras.

APPENDIX III.

COMMUNICATED BY SURGN.-LIEUT.-COL. S. L. DOBIE.

Notes by the Medical Store-keeper, Madras; and by D. Hooper, Esq., Quinologist, Madras.

The following notes regarding the drugs used at the Madras Medical Stores have been taken almost entirely from the list of drugs, etc, of local supply for 1894-95 and 1895-96.

To give other indigenous drugs and bazár medicines would be to form a list of enormous proportions, and one which would take a very long time to compile.

I may say that I think it probable that indigenous drugs not mentioned here are unlikely to be of much use, and that the B. P. articles for which they might be used as substitutes are very much better.

Most of the prices given are those tendered by contractors in Madras and Bombay. Rates through the Bombay Depôt are contract rates accepted by the Bombay Storekeeper, and at which we can obtain the articles in Bombay through him from his contractors.

The fact that this list has been compiled by me while I have been absent on leave, has perhaps somewhat curtailed it. Through the kindness of Mr. D. Hooper* I am able to attach a memorandum by him which adds greatly to the value of this report.

* Government Quinologist, Nilgiris, and part author of the Pharmacographia Indica.

Kathiawar. Mysore Conf. with pp. 126, 130, 155.

1. Aloes.—Bombay is the centre of the aloes trade in the East. The Indian varieties are manufactured in Jafarabad (Kathiawar) and at Mysore and are consumed locally. The Arabian aloes is the drug met with in most parts of India. The various aloes are as follows:—(a) Aloe Succotrina (Aloe Perryi) imported into Bombay from Socotra and Arabia *viâ* Zanzibar and Red Sea ports; (*b*) Aloe Abyssinia (Jafarabad Aloe) grown on coast of Kathiawar; (*c*) Aloe Vera, Barbadoes Aloes, grown in India, and probably the Mysore Aloe; (*d*) Yamani, or Moka aloes, or Aden aloes, from Arabia, is the kind most in use with natives of India. It is dark and less aromatic than Socotrine aloes. *Socotrine aloes.*—The best and cheapest has been obtained by this Depôt at annas 11, and annas 11 and pies 2 per lb, through the Bombay Depôt. Bombay receives most of the Socotrine aloes for distribution to the drug markets of the world. It should be of B. P. quality. Prices 11 annas to R3-8 per lb.

Karachi. Conf. with p. 131.

2. Acaciæ Gummi.—The best and cheapest has been obtained by this Depôt at 3 annas 3 pies and 4 annas 6 pies per lb through the Bombay Depôt and is probably "Kurrachee picked." It should be equal in equality to B. P. Prices 3 annas 3 pies to 6 annas per lb.

TO PARA. 6 OF THE REPORT.

INDIGENOUS DRUGS: Madras.

3. ***Alumen.***—Obtained by this Depôt through Bombay Depôt at 9 pies per lb, procurable in most bazárs. It is subject to many impurities. It should be equal in quality to B. P. Prices 9 pies to 3 annas per lb.

4. ***Acidum Arseniosum.***—This may be obtained in most bazárs. Its quality should be that of B. P. Prices 4 annas to 14 annas per lb. Obtained by this Depôt through Bombay Depôt at 7 annas 10 pies and 8 annas per lb.

5. ***Ammonii Chloridum.***—Procurable in bazárs. Often very impure. Should be of B. P. quality unless one takes the trouble to recrystallize it. Prices 6 annas to 14 annas per lb.

6. ***Ammoniacum.***—It should be obtained from Bombay. Should be of B. P. quality. The Pharmacographia Indica gives its price as 4 annas per lb., but ours through the Bombay Depôt has been 7 annas 9 pies per lb. Other prices are 7 annas to R1 per lb.

7. ***Asafœtida.***—The Asafœtida, *Hing.*, most highly prized in India is from **Ferula alliacea**, and is distinct from that of European commerce, *Hingra*, from **Ferula fœtida**.

The asafœtida comes to Bombay from Afghanistan and Persia. There are many qualities and adulterations. It should be of B P. quality. A fair price (at which we receive it through Bombay Depôt) is 10 annas per lb. According to Pharmacographia Indica, prices run from 2 annas 1½ pies for commercial *Hingra* (**Ferula fœtida**) to 11 annas 5 pies for *Hing* (**Ferula alliacea**) per lb. Kandahari *Hingra* is 10 annas 8 pies per lb.

Afghanistan

Kandahar.

8. ***Aurantii Cortex.***—Obtainable in most bazárs from 2 annas to 4 annas per lb. Should be of B. P. quality. We receive our supply through the Bombay Depôt at 2 annas 6 pies per lb.

9. ***Belæ Fructus.***—Obtainable in most bazárs. Should be of B. P. quality, Prices 7 pies to 4 annas per lb.

Conf. with Report, pp. 8, 11, 17, 27, 61. App., pp. 137-40, 145, 189, 309.

10. ***Benzoin.***—Obtainable in most bazárs. Should be of B. P. quality. Obtained by this Depôt through Bombay Depôt at 13 annas 4¾ pies per lb. Prices 2 annas to 13 annas 4¾ pies per lb, quoted by Pharmacographia Indica at annas 12-9⅗ to annas 4-11⅐ per lb. Lower rates than 13 annas or 14 annas are for inferior quality suitable for incense but not for medicine.

An artificial benzoin is manufactured in the bazárs in which pieces of silicate of magnesia are embedded in common American resin. It is sold to the poor for religious uses.

11. ***Borax.***—Obtainable in most bazárs. It is subject to many impurities. Obtained by this Depôt through Bombay Depôt at annas 2-11 per lb. Should be of B. P. quality. Prices annas 2-11 to annas 10 per lb.

INDIGENOUS DRUGS:

APPENDIX III.

..Madras.

12. Calumbæ Radix.—Imported into Bombay from Mozambique. Obtained by this Depôt through Bombay Depôt at anna 1-11 to annas 2 per lb. Should be of B. P. quality. Prices 1 anna 11 pies to 6 annas per lb

Conj. with pp. 130, 136.

Madras.

Coscinium fenestratum, a substitute at R1½ per maund, or 2 annas per lb retail in Madras.

13. Camphora.—Obtained by this Depôt through Bombay Depôt at R1-3-6 to R1-4-6 per lb. This is for refined Japanese in tablets. It is obtainable in most bazárs. Subject to impurities. It is sublimed by natives on to the inside of chatties and is made to absorb as much water as possible. It is then opaque and crumbly. Should be of B. P. quality. Prices 12 annas to R1-6-0 per lb.

Refined in India.

14 Cannabis indica—Obtainable in all bazárs. None has been received into this Depôt during 1894-95 and 1895-96, but I made arrangements from information derived from the Bombay Medical Storekeeper to obtain it duty free from Khanapura Taluka, Satara, at 1 anna 4½ pies (Deshi seed) to 1 anna 6 pies (Nagar seed) per lb. It should be of B. P. quality. Prices according to the Pharmacographia Indica: *Ganja* (the female flowering tops from which the resin has not been removed) wholesale, duty-free, at 4 annas 6 pies per lb; *Bhang* (the larger leaves without the stalks) wholesale, duty-free, at anna 1-6 per lb. True *charas* is the resinous exudation in grey powder; false *charas* is powder of leaves and dust mixed with true *charas*.

Cont. with p. 124. Satara

15. Caryophylli.—Obtainable in all bazárs. Should be of B. P. quality. Cloves may be enumerated in order of value, thus: Penang, Bencoolen, Amboyna, Zanzibar. They have been cultivated in Southern India. Cloves in the bazárs are usually old and worthless.

Penang

16. Cubebæ.—Obtained by this Depôt through Bombay Depôt at annas 5 pies 9 to annas 7 pies 6 per lb. Should be of B. P. quality. The Pharmacographia Indica states that they were formerly 4 to 5 annas per lb, and have risen in price. Prices 5 annas 9 pies to R2 per lb.

17. Cupri Sulphas—Obtained by this Depôt through Bombay at 2 annas 8 pies per lb. Subject to impurities. Should be of B. P. quality. Prices 2 annas 8 pies to 4 annas 10 pies per lb.

18 Cusso.—A bazar commercial article in Bombay; it comes direct from Africa. Obtained by this Depôt through Bombay Depôt at R1-15-6 to R2-3-0 per lb. Should be of B. P. quality. Prices from R1-4-0 to R3 per lb.

19. Capsici Fructus—Obtainable in all bazárs. Should be of B. P. quality. Prices from 2 annas to 4 annas per lb. The Pharmacographia Indica gives the price as 1 anna 8 pies per lb.

TO PARA. 6 OF THE REPORT.

INDIGENOUS DRUGS:

Madras.

20. ***Cardamomi Semina.***—Obtainable in most bazárs. There are many qualities, and the various kinds are quoted (London drug market) as Ceylon-Mysore, Ceylon Malabar, and Tellicherry, in the order of their value, the last named being the cheapest. Should be of B. P. quality. Prices without pericarp annas ... to R1 14 0. Mysore Malabar Tellicherry

21. ***Carui Fructus.***—Black caraway is imported into India from Afghanistan, Persia, Kashmir, and the Panjab.* Should be of B. P. quality. The European B. P. article cost about R1 per lb in India. Price of the black caraway in bulk containing a lot of trash, annas 3-5 per lb. Cleaned, it fetches 8 annas retail. All this information is gathered from the Pharmacographia Indica. Prices quoted through Bombay Depôt, annas 4 and annas 5 5 per lb. Madras prices 2 annas to 9 annas per lb. Bombay Kashmir Panjab

4 to, pp. 1 ', 181

22. ***Catechu.***—Both Pale Catechu (Uncaria Gambier) from the Straits and Black Catechu (Acacia Catechu) from India, cost about 10¾ pies to anna 1 3 per lb. This Depôt has obtained catechu pale through the Bombay Depôt at annas 3-6 and annas ... per lb. A quality equal to B. P. should be used. Prices annas 3 5 to annas 8-6 (best Surat). Watt's Dictionary of Economic Products of India gives 10½ pies to anna 1 3 per lb, for the commercial catechu, pale and black. The pale is more suitable in medicine as it is more soluble than the black. Pale Catechu Straits Black Catechu Surat

Conf. with pp. 18, 94, 100, p. 181

23. ***Chiretta.***—From Nepal, the B. P. quality should be used. Prices 2 to 5 annas per lb.

Conf. with pp. 103, 137.

24. ***Cassiæ Cortex.***—This Depôt accepts Cassia (Cassia Lignea or Cassia Cinnamon) in lieu of Cinnamomum zeylanicum, on the score of economy. Indian cassia is inferior to China cassia. A good quality of bark is required as there are many less esteemed kinds of cassia bark. Of course cassia is not nearly as good as genuine cinnamon bark. Prices of Indian cassia 3 annas to 5 annas and 8 annas per lb. This Depôt is supplied through Bombay Depôt at 4 annas and 4 annas 2 pies per lb. Malabar cassia (*Kalfa*) at about 1 anna per lb is sold as a substitute for Chinese cassia at 3½ to 4 annas per lb. The inferior cassia barks are thick and mucilaginous. Cassia Lignea Conf. with p. 126 Cassia Cinnamon Malabar Chinese

25. ***Coriandri Fructus.***—Obtainable in most bazárs. Grown all over India. Should be of B. P. quality, not worm-eaten, split, or dry. Prices 1 anna to 2 annas per lb.

26. ***Galla.***—Obtained by this Depôt through Bombay Depôt at 6 annas and 6 annas 3 pies per lb. Imported into Bombay from Basra and Persian Gulf. The Pharmacographia Indica quotes them as "Blue" annas 7-3$\frac{1}{8}$, "White" annas 4 ... per lb. Should be of B. P. quality. Basra and Persian Gulf Blue and White

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* A sample recently sent to Reporter on Economic Products from Kashmir for report proved to be *Carum Bulbocastanum* not *Carum Carui*.—G. Watt, Hon. Sec.

INDIGENOUS DRUGS: Madras.

Abrus: Conf. with Report, pp. 61, 64, 65, & App., p. 127.

Liquorice: Persian, Afghanistan, Sind, Panjab.

27. ***Glycyrrhizæ Radix.***—Obtained by this Depôt through the Bombay Depôt at annas 2-5 and annas 3-3 per lb. Quality equal to B. P. should be insisted upon, and on no account should the worthless substitute (**Abrus precatorius,** Jequirity root) be accepted. The genuine liquorice is imported into Bombay from Persia, Afghanistan, Sind, and Panjab. The best kind is known as "Kurrachee" at anna 1-5$\frac{1}{7}$ to annas 2-3$\frac{3}{7}$ per lb wholesale. Jequirity root is grown all over India, and economically, commercially, and therapeutically, is no reasonable substitute for liquorice.

28. ***Hæmatoxyli Lignum.***—Imported into India. Obtained by this Depôt through Bombay Depôt at anna 1-4 per lb. Should be of B. P. quality. Other prices 2$\frac{1}{2}$ annas to 5 annas per lb.

Ipecacuanha. Conf. with Report, pp. 8, 44, & App., pp. 127, 154, 189.

Indian Ipecacuanha. Conf. with p. 127.

Calicut.

29. ***Ipecacuanhæ Radix.***—A native of Brazil introduced into India and Burma, and cultivated at Government gardens with scanty success. **Tylophora asthmatica,** which grows all over India, is official in the Pharmacopœia of India, in which it is stated that "it may be regarded as one of the best indigenous substitutes for Ipecacuanha." Watt's Dictionary of Economic Products, India, quotes **Moodeen Sheriff,** thus:—"It is not the best, but one of the four or five best substitutes (for Ipecac), and ranks after **Randia dumetorum, Strychnos potatorum,** and **Luffa amara.**" But **Moodeen Sheriff** is not supported. **Naregamia alata** is the country Ipecacuanha of the Portuguese at Goa. It may be obtained from Hinde & Co., Calicut. Neither of these substitutes is received into this Depôt.

Two qualities Kapila and Kapili. Conf. with p. 131.

Adulterants.

30. ***Kamala.***—**Mallotus phillipinensis**—Obtained by this Depôt through Bombay Depôt at annas 8 per lb. Procurable in most bazárs; grows wild all over India. Two qualities—Kapila and Kapili: the latter is the best. May be adulterated with powdered bark of **Casearia tomentosa** with powder from the red fruits of **Ficus bengalensis** and with dust: as a dye it may be mixed with arnatto, **Bixa Orellana.** The best quality should be used. Prices annas 8 to R1-13 per lb.

Ootacamund Conf. with p. 153.

31. ***Jalapa.***—Introduced into India from the Mexican Andes. Supplied to this Depôt by Government Botanist, Nilgiris. Also grown privately on the Nilgiris. "Dried Jalap tubers can be produced in Ootacamund at a cost of 4 annas 10 pies per lb."—(Jamieson, 1881-82.)

Malabar Conf. with p. 5, & App., pp. 127, 132, 143.

Adulterants

32. ***Kino.***—This Depôt obtains Kino through the Bombay Depôt at R1-4-11 per lb. It is liable to much adulteration with Butea Gum. I have received and rejected as a substitute some gum stained, I believe, with aniline dye. Genuine Kino, Malabar Kino, is from **Pterocarpus Marsupium,** Bengal or Butea Kino is from

Madras.

Butea frondosa, and Waring (Bazár Medicines) says the whole of the so-called Kino of the bazárs is this substance, but that it is of little moment as it is equally effectual. Butea Kino

The genuine Kino appears to me to be much more powerfully astringent; and that received by this Depôt through * the Bombay Depôt is of an excellent quality, not easily procurable from wholesale chemists in Great Britain at a high price.

* *Note on Kino.*

This came from the District Forest Officer, Manantoddy, North Malabar, who has since supplied me with the same good quality Kino direct; but he has sent it to me of the consistence of thick treacle; it dries quickly in the sun, losing about $\frac{1}{4}$ of its weight. Sent in this form the freight is unnecessarily increased by $\frac{1}{3}$ and there is loss by adhesion. He states that he prefers to send it thus: but he has not yet explained why. His rate for it in the treacly form is 5 annas per lb, exclusive of freight and packing.—(S. L. Dobie, December 5, 1895)

Solution of Butea Gum is more astringent in water than spirit. Solution of true Kino is more astringent in spirit than water. A quality equal to B. P. should be used. Prices, including true Kino and Butea Kino, R1 to R2-11. The Pharmacographia Indica gives Butea Gum at 3 annas per lb, and states that a false Kino, similar to Malabar Kino (**Pterocarpus Marsupium**), has appeared in the Bombay market. The false is very insoluble in water and spirit, whereas good Kino should dissolve readily in rectified spirit.

33. ***Menthol.***—See **Ol. Menthæ Pip**

34. ***Mylabris Cichorii.***—Common throughout India. The best time for collecting is September. They should be gathered morning or evening, killed by steam of boiling vinegar, dried in sun, and preserved in stoppered bottles. Prices R1-12 to R3-2 per lb. *Conf. with pp. 151, 184.* India.

35. ***Myristica.***—Obtained by this Depôt through Bombay Depôt at R1-4 per lb. *Conf. with p. 197.*

From **Myristica fragrans,** imported from Penang, Malay, Java, Zanzibar, R1-4 to R1-8-0 per lb. The B. P. article should be used (*i.e.*, **Myristica fragrans**). The best nuts in the London market run about 4 to 1 lb and are 1 inch long by $\frac{7}{10}$ inch broad. As imported into India they run $6\frac{1}{4}$ to $8\frac{1}{3}$ to 1 lb. **Myristica malabarica** (from the Konkan, Kanara, and North Malabar) as a substitute is inferior in oiliness, odour, and medicinal properties; and its mace, *Rampitri*, is used as an adulterant of the mace of **Myristica fragrans.** The nuts of **Myristica malabarica** cost wholesale about $10\frac{6}{8}$ pies per lb, and the mace annas 8-$6\frac{2}{3}$ per lb. Penang, Java, Zanzibar. Bad substitute: Konkan, Kanara, North Malabar.

36. ***Myrrha.***—Obtained by this Depôt through the Bombay Depôt at R0-11-6 per lb. It is of many qualities; that in the bazars

INDIGENOUS DRUGS:

Madras.

APPENDIX III.

being very impure; and is imported into Bombay. The East Coast African Myrrh, true Myrrh, known as *Karam* is quoted at R0-14-$9\frac{7}{25}$ per lb; South Arabian and Siam Myrrh, *Mutiyah*, at 6 annas 10 pies to 10 annas 8 pies per lb, refuse at annas 3-5 per lb. The B. P. quality should be used. Prices from annas 10 to R1 per lb.

African East Coast. South Arabian. Siam.

37. *Oleum Anisi.*—The B. P. article is from **Pimpinella anisum**, but the oil from Star Anise (**Illicium anisatum**=**I. verum**) is indistinguishable from that of **Pimpinella anisum**. This oil is imported from China at R$4\frac{1}{2}$ per catty in 12 catty tin jars; obtained by this Depôt through Bombay Depôt at R4-9-9 per lb. Prices R4-9-9 to R9 per lb. A quality equal to B. P. should be used.

Oil from China.

Persia.

Anise (**Pimpinella anisum**, is imported from Persia at (wholesale) annas 2-$1\frac{6}{15}$ to annas 2-$6\frac{21}{75}$ per lb.

China.

Star anise (**Illicium anisatum**) from China at annas 6 (broken in bags) to annas 7-$3\frac{4}{75}$ (selected in boxes) per lb.

38. *Oleum Arachidis.*—Ground-nut oil much used in Bombay. Not much used in the Madras Presidency. It is a substitute for olive oil, for which Oleum Sesami is principally used in the Madras Presidency. Prices annas 2 to 9 per lb.

Substitutes for Olive Oil.

Singapur

39.—*Oleum Cajuputi.*—Obtained by this Depôt through the Bombay Depôt at R1-1-3 per lb. Should be of B. P. quality. Prices R1-1-3 to R2-8-0 per lb. Imported into Singapur in quart bottles at R1-8 per bottle (*i.e.*, 1½ lb or ⅙ gallon or R1 per lb). Cost price in Singapur—

8 dols. for 25 quarts in case.
1 dol. freight to Madras.

9 dols., or about 8½ annas per lb.

40 *Oleum Cassiæ.*—The difference in quality between this and true oil of cinnamon is much the same as that between the respective barks from which they are distilled. Oil of cassia comes from China. It should be of quality approaching somewhat to the B. P. article which, however, it cannot touch. Good oil of cinnamon costs one shilling per oz, while oil of cassia costs about 4 shillings per lb. Indian prices R2½ per catty and R1-12 to R3 per lb.

China.

Much adulterated.

41.—*Oleum Crotonis,* as prepared in India, is so much adulterated as to have no sale in England. Cost as made at Government Medical Stores, Bombay, 12 annas per lb. A quality equal to B. P. should be used. Prices R1-8 to R3-4 per lb.

42. *Oleum Eucalypti*—Is distilled by Mr. Wallace, West End Laboratory, Ootacamund, Mr. Perkins, Lovedale, Ootacamund, and Mr. T. Brown, Coonoor.

Ootacamund.

INDIGENOUS DRUGS: Madras.

They are, however, undersold by Eucalyptus oil imported from Australia. Prices R2 and R2-4 per lb of Indian make or imported. The Australian brands with English prices are as follows:—

West Indian Bay oil	8s. per lb.
Porcupine	3s. „
Free from irritating constituents and containing 56·2% crystallisable Eucalyptol	2s. 6d.
Eagle Brand, Tasmania	1s. 3d.
Ordinary Nondescript	1s.
Ordinary	9½d.

43. *Oleum Gurjan.*—Various species of **Dipterocarpus** yield *Gurjan* or "wood oil." *Conf. with p. 156.*

Moodeen Sheriff in his Materia Medica of Southern India mentions that wood oil is common in most large bazárs— Burma.

	Wholesale per maund.	Retail per lb.	
	R	*R*	*a.*
Black or dark brown gurjon or wood oil	12	0	10
Pale or white grey do.	18	1	0
Red or reddish brown do.	24	0	4

The latter should be used for internal use; all are equally useful as a local stimulant. Prices vary from 3 annas to 11 annas per lb.

44. *Oleum Gynocardiæ.*—*Chaulmugra* oil from **Gynocardia odorata**. Moodeen Sheriff gives its price as R5 per lb and 6 annas per oz. in the bazárs. Rates tendered annas 12 to R2-4 per lb. Assam and Burma *Conf. with p. 159*

45. *Oleum Lini.*—Obtained by this Depôt through Bombay Depôt at annas 3-8 per lb. Central Provinces.

46. *Oleum Menthæ Pip.*—**Mentha piperita** was produced at the Nilgiri gardens in 1880-81, and good oil distilled therefrom; in 1881-82 the oil was unfavourably reported on, and in 1882-83 the crop was a failure. An efficient substitute for English oil of peppermint (from **Mentha piperita**) is the Japanese oil from **Mentha arvensis**, but the latter is inferior in aroma and quality; however, the English (Mitcham) oil costs from 3 to 5 times as much. The Chinese oil is inferior to the Japanese, is generally bad, and may be adulterated with Colophony, a terebinthinate material. Both Chinese and Japanese may be reduced in quality by being dementholised. This Depôt has obtained through the Bombay Depôt a very good Chinese oil of peppermint at R3-8 and R2-15-5 per lb. Prices R2-15-5 to R12-8 per lb. Nilgiris. Chinese. Japanese. Substitute. *See p. 157.*

INDIGENOUS DRUGS: Madras.

APPENDIX III.

Behar.

47. ***Oleum Papaveris.***—Prices 6 to 8 annas per lb. Adulterated with ground-nut oil or gingelly oil; it may be had cheaper, say, at 4 annas per lb.

Calcutta.

48. ***Oleum Ricini.***—The bazár oil extracted by boiling is more active and more acrid than the cold-drawn oil, and does not keep so well as the latter. Prices annas 2-6 to annas 5-9 per lb.

Bombay and Central Provinces. Good Substitute for Olive Oil.

49. ***Oleum Sesami*** (*Gingelly oil*).—The oil from *tili*, white-seeded sessamum, is better for human consumption than that of *til*, the black-seeded variety. Obtained by this Depôt from Bombay Depôt at annas 2-3½ per lb. A good quality oil, which can be had equal to olive oil, should be used. Prices annas 2-3½ to annas 3-11 per lb.

Report, pp. 6, 12, 14; App., pp. 132, 135, 147, 180.

50. ***Opium.***—Obtained by this Depôt from the Government Factory at Patna. Another factory is at Ghazipur. The extent of cultivation and the quantity of opium to be annually brought forward for sale are regulated by the Government of India.

51. ***Piper Nigrum.***—Obtained by this Depôt through Bombay Depôt at annas 3 and annas 3-9 per lb. Prices 3 to 6 annas per lb.

52. ***Potassii Nitras.***—Obtained by this Depôt through Bombay Depôt at anna 1-11 to annas 2-3 per lb. Is often very impure as found in bazárs. B. P. quality should be used. Prices anna 1-11 to 10 annas per lb.

Conf. with p 158.

53. ***Pterocarpi Lignum.***—The wood of **Pterocarpus santalinus**, red sandalwood. Obtained by this Depôt through Bombay Depôt at anna 1-6 and anna 1-7 per lb. It is grown in Southern India; imported into Bombay and Calcutta from Malabar. Prices anna 1-6 to 6 annas per lb.

Malabar.

54. ***Resina.***—Obtained by this Depôt through Bombay Depôt at 10 pies per lb. Prices 1 to 2 annas.

55. ***Rosæ Petala.***—Obtained by this Depôt through Bombay Depôt at annas 2-10 to 4 annas per lb. Prices annas 2-10 to 6 annas per lb.

Sarsaparilla, Jamaica: Indian Substitutes.

56. ***Sarsæ Radix.***—Genuine Sarsaparilla (**Smilax officinalis**, Jamaica Sarsaparilla) is probably only found in India in chemists' shops. **Smilax china** and **Smilax glabra**, substitutes for B. P. article, are found in every bazár. The roots are tuberous.

Bengal

This Depôt obtains **Hemidesmus indicus** as a substitute for Sarsaparilla through the Bombay Depôt at 4 annas 10 pies to 6 annas 3 pies per lb. Prices annas 2-6 to annas 6-3 per lb.

Conf. with pp 131, 153. Goa.

Smilax ovalifolia is the country Sarsaparilla of the Goanese, and is sold in Goa in the shops, but it is not used by natives; it has a general resemblance to Sarsaparilla.

TO PARA. 6 OF THE REPORT.

INDIGENOUS DRUGS: Madras.

Squills, a substitute for.

Conf with Report, pp 39, 48, 57, and App., pp. 152, 233-42, 289-91.

Bombay. Madras.

57. *Scilla.*—An indigenous substitute for the genuine B. P. squill (**Urginea Scilla**) is obtained by this Depôt through the Bombay Depôt at annas 3 and annas 3-11 per lb. This was in the opinion of the Government Botanist, Mr. Lawson, the Government Quinologist, Mr. Hooper, and myself, probably **Ledebouria hyacinthoides** and not **Urginea indica,** Indian Squill. To be of any use the bulbs of the former must be taken small and young and soon after the plant has flowered; otherwise the drug is useless and inert.

Both **Urginea indica** and **Ledebouria hyacinthoides** are reported to be efficient substitutes for the B. P. drug. Mr. Hooper has sent a report to the *Chemist and Druggist* on the efficacy and chemical constitution of the latter. Only good bulbs should be used. Prices annas 3 to annas 4-9 per lb.

Arabia. Tinnevelly

58. *Senna.*- Obtained by this Depôt through Bombay Depôt at 11½ pies per lb. The importation of Arabian Senna (**Cassia acutifolia**) is rapidly declining owing to the large quantity of Tinnevelly leaves (**Cassia angustifolia**) now offered at extremely low rates. Prices 11½ pies to 4 annas per lb.

Asia Minor; Adulteration of.

59. *Styrax.*—Imported through Red Sea into Bombay from Asia Minor. Is often adulterated in India with coal tar. Obtained by this Depôt through Bombay Depôt at annas 10-6 and 14 annas per lb. Should be of B. P. quality. Prices annas 10-6 to R2-4 per lb.

App., pp. 119, 151.

60. *Thymol.*—Prepared in Central India from **Carum copticum** as "Flowers of Ajwán' (*Ajwán ka phul*) obtained by this Depôt through the Bombay Depôt at R6-11 per lb. Should be of B. P. quality. Prices R6-11 to R12 per lb.

61. *Tragacanth.*—True Tragacanth is imported into India and is found in all bazárs. A good quality equal to B. P. should be used. Prices 8 annas to 12 annas per lb. Substitutes for Tragacanth are known in commerce as Busiah gums, Hog-gums, Hog-tragacanth, and in India as *Katira.* They are much inferior to Tragacanth, the colour being bad. In India the gums of the following are employed as substitutes for Tragacanth :—

(*a*) **Cochlospermum Gossypium.**

(*b*) **Sterculia urens**--*Katira* gum.

(*c*) Hog-tragacanth from **Prunus Amygdalus** imported from Persia into Bombay.

The Tragacanth from **Sterculia** is quoted (in Pharmacographia Indica) at R12 per cwt., *i.e.,* 1 anna 8 pies per lb.

INDIGENOUS DRUGS:

APPENDIX III.

Madras.

Raisins: Kabul, Persia, Sind.

62. *Uvæ.*—Obtained by this Depôt through Bombay Depôt at 1 anna 10 pies and 1 anna 11 pies per lb. The raisins are from Kabul and Persia and are Sultanas.

The Kabul and Persian Sultanas are (Pharmacographia Indica) valued wholesale at pies 7 7/11 to 2 annas 9 2/3 pies per lb, *i.e.*, large pale green (*angul drakh*) R5 1/2 per 37 1/2 lb.

Black bloom raisins (*kala drakha* for medicinal purposes) R5 per 37 1/2 lb. Munakha, an inferior kind like pudding raisins in England, R3 per 37 1/2 lb. Prices tendered, anna 1-10 to annas 4-6 per lb.

63. ***Zingiberis Radix.***—Obtained by this Depôt through Bombay at annas 4-11 and annas 4-11 1/2. The best Indian ginger is Cochin or Malabar ginger. Prices 4 annas 11 pies to 7 annas 6 pies per lb.

Cochin. Malabar.

S. L. DOBIE, *Surgn.-Lieut.-Col.,*
Medl. Storekeeper to Govt., Madras.

Memorandum to accompany Surgn.-Lieut.-Col. Dobie's Note on Indigenous Drugs and Bazar Medicines.

Conf. with pp. 116, 149 158.

Aloes.—A sample of aloes sold locally in the Bangalore bazár was highly adulterated with sand and stones. It was said to be made locally, but on enquiry I found that the plant was not cultivated sufficiently to afford any quantity of juice, and I concluded that the aloes had been bought in Bombay and adulterated by the native merchants. Good aloes should always be purchased direct from Bombay.

Conf. with p. 118.

Cannabis indica.—I see no reason why *Ganja* should not be obtained for the Madras Depôt from one of the two localities in this Presidency in which it is manufactured. My report to the Hemp Drugs Commission showed that the *Ganja* from the Javadi Hills, Vellore, and that from Daggupad, Kistna District, compared very favourably with the best Bengal Indian hemp.

Vellore: Kistna

Conf. with pp. 119, 130.

Cassia Bark.—If Cassia bark must be substituted for Cinnamon bark in the local Depôts, then the bark from cultivated trees only should be used. In collecting barks from wild trees, belonging to the genus **Cinnamomum**, an inexperienced native is likely to mistake the species of **Litsæa** for the proper tree. The fragrant bark of the species of **Litsæa** is something like Cinnamon, but is very

poisonous, as it contains an alkaloid which acts on the muscular system like Strychnine.

Abrus precatorius.—This root should not be used as a substitute for liquorice-root. In an exhaustive paper on this subject published in the *Pharmaceutical Journal* (May 5, 1894) entitled "Abrus precatorius, a chemical examination of the leaves and root, I have shown that the drug is altogether unworthy of the name of Indian liquorice. *Conf. with p. 64, and App., p. 140*

Ipecacuanha Radix. None of the Indian substitutes for Ipecacuanha should be used in place of the Brazilian plant. Psychotria Ipecacuanha Tylophora, Randia, Luffa, Scammone, and Naregamia have never been tested physiologically and their emetic properties when taken in large doses, like hundred of other plants, should not justify their being ranked with the official Ipecacuanha. *Conf. with Report, p. ..., App., pp. 140, 151, 152.*

Kino.—The Malabar Kino, the produce of Pterocarpus Marsupium, is getting very scarce in the European markets. This is the best kino in the world, and the Madras Forest Department should be asked to report on the reason of the decline of this commodity. The Butea Kino of Bengal is a very inferior article; it is not only entirely insoluble in water and spirit, but the samples I have met with are always mixed with bark, stones, and other rubbish. *Conf. with Report, p. 3, also App., pp. 140, 152, 153.*

Nutmegs. Malabar nutmegs that I have met with had scarcely any odour and fatty matter, and the mace was no better. The fact that they are used to adulterate the nuts of Myristica fragrans should warn Government not to use the nuts as a substitute. *Bad Substitute. Conf. with p. 121 Malabar.*

Oleum Sesami.—The oil of gingelly seed is almost identical in chemical composition with olive oil, and, if carefully prepared and unmixed with other oils, could be used for similar purposes dietetically and medicinally. *Substitute for Olive Oil. Conf. with p. 124*

Nitrate of Potassium.—Native saltpetre is very impure, some of it contains only about 15 to 25 per cent of potassium nitrate, the rest consisting of common salt and lime. For medicinal purposes the salt as refined in Europe should be used.

D. HOOPER.

OOTACAMUND,

The 14th October 1895.

INDIGENOUS DRUGS: Bengal.

APPENDIX IV.

Dated Calcutta, the 5th December 1895.

Demi-official from—Babu BOLYE CHUNDER SEN,

To—Surgn.-Lieut.-Col. J. F. P. McCONNELL, M.D.

Agreeably to your request I beg to send a few suggestions for your consideration and for that of the other members of the Indigenous Drugs Committee after consulting with my colleagues, Drs. D. N. Roy and M. N. Gupta.

Conf with p. 142.

We may be pardoned for venturing to say that the books now extant in English, on indigenous drugs, by eminent medical men, are no doubt valuable contributions to medical literature, but are of little practical value when seriously considered; for they are not the embodiment of the experiences of those gentlemen, but are mere translations of the therapeutic uses of drugs from Sanskrit works by the help of Kobirajes without being tested as to their real value by personal observation. Medicines, moreover, cannot singly be very efficacious in combating diseases with their various symptoms and complications, so a mere translation, in our humble opinion, will fall flat on the profession, like their predecessors, and meet with the same fate.

Therapeutic Values.

Conf. with App., pp. 142, 357.

Cost of Drugs. *Conf. with p. 150.*

If, however, a beginning is made under Government auspices, to ascertain the therapeutic value of each individual drug and its compounds, so that they may be substituted for costly imported articles, it would confer a real and lasting benefit to the country and its people. We would therefore humbly offer, for the consideration of the Committee, that a certain number of beds be set apart in certain hospitals under men who would loyally and cheerfully carry out the suggestions of the Committee in testing the value of the drugs selected by some eminent Kobirajes and under their supervision in certain diseases under the immediate eye of the Medical Officer.

Some of the metallic preparations may also be similarly tested.

The Kobirajes thus engaged, will have some labour and great loss of time, which to men in practice means loss of money, and so we hope the Committee, after their labour is over, will submit their names for some recognition, on the part of Government, for their services in the cause of science.

Kobiraj Sham Kishore Sen, of No. 3, Babooram Ghose's Lane, has kindly consented to help the Committee if asked by Government.

TO PARA. 6 OF THE REPORT.

He is willing at first to treat patients with his own medicines and then prepare compounds for the independent use of the Committee.

If he be asked to help the Committee by treating patients in hospital, he will at least require conveyance hire.

I will try and get another Kobiraj of repute in the town as desired by you.

INDIGENOUS DRUGS:

Bombay.

APPENDIX V.

COMMUNICATED BY SURGEON-MAJOR J. PARKER.

(A) List of Country Medicines, etc., procured by the Medical Storekeeper, Bombay, by annual contract, from 1st April 1896 to 31st March 1897.

Quantity.		Names of Articles.	Locality.
3,253	l	Acaciæ Gummi (Aden or Karachi) .	Egypt and Muswa.
32	,	Acidum Arseniosum	Local market.
1,903	:	„ Hydrochloricum (commercial), S. G. 1163 . .	Do.
2,368	,	„ Nitricum (commercial), S. G. 1381	Do.
4,622	.	„ Sulphuricum (commercial), S. G. 1840 . . .	Do.
106	„	Aloe Socotrina (hard) . . .	Basra and Aden.
400	„	Alumen	Local market.
69	„	Ammoniacum (in large tears) . .	Basra.
2	„	Amylum (wheat starch) . . .	English and Local.
30,000	„	*Arachis Semina (red seeded Groundnut)	Nassik.
262	„	* Asafœtida (*Hingra*, in tears) .	Basra.
277	„	Auranti Cortex . . .	Zanzibar and Mozambique.
318	„	Bela Fructus	Kalian.
41	„	* Benzoinum (good Almondy) .	Singapore and China.
710	„	Borax	Calcutta and Cawnpore.
035	„	Calumbæ Radix (best picked bright)	Aden and Zanzibar.
153	„	* Calx (Quicklime)	Surat.
500	„	Camphor (raw)	China, Japan, and Europe.
2,108	„	Camphora (refined)	Malabar and Goa.
15	„	Capsici Fructus (Goa) . . .	Local market.
9	„	Carbo Ligni (wood charcoal) . .	Do.
5,051	„	Carbolic Powder (15 per cent.) .	Do.
98	„	* Cardamomi Semina (Malabar seed)	Malabar.
24	„	Carui Fructus	Local market.
21	„	Caryophyllum	Zanzibar.
291	„	* Catechu Pallidum (best Singapore)	China.
173	„	Cera Alba (white wax) . . .	Guzerat, Zanzibar, and Mozambique.
4,225	„	Cera Flava (bright colour, uniform, and free from dirt and dross) .	Do.
401	„	Chalmugra Semina	Calcutta.
2,502	„	Chiretta	Do.
409	„	* Cinnamomi Cortex (best China Cassia)	China

TO PARA. 8 OF THE REPORT.

INDIGENOUS DRUGS

Bombay.

List of Country Medicines, etc., procured by the Medical Storekeeper, Bombay, by annual contract, from 1st April 1896 to 31st March 1897—contd.

Quantity.		Names of Articles	Locality
9	lb	Coriandri Fructus	Poona, Amraoti, and Nasik
286	„	Crotonis Semina	Malabar and Cawnpore
264	„	Cubeba	Singapore
339	„	* Cupri Sulphas	Europe
30	„	Cusso (Brayera anthelmintica)	Do and Muscat
23	„	Colocynth Fructus *	Local market
87	„	* Galla (best blue, Basra)	Basra.
360	„	* Glycyrrhiza Radix (Karachi)	Do and Punjab
230	„	Hemidesmi Radix	Bandra, Goa, and Calcutta.
1,017	„	Hydrargyrum Purificatum	Europe
7	„	Incense	Local market
2	„	Indigo (best Bengal)	Bengal, Karachi, and Madras.
7	„	Kamala (best clean)	Sind, Lahore, and Punjab
19	„	* Lampblack	Malabar and Europe
322	„	Lini Farina (Rogers & Co.)	Local market
4	„	Mel Depuratum	Do.
10	„	Menthol (Fudina-ka-phul)	China
103	„	* Myrrha (best Karain, large pieces)	Basra.
76	„	Myristica (Nutmeg)	Singapore.
369	„	* Nux Vomica (Bombay)	Malabar
151	„	* Oleum Anisi (China-picked)	Singapore
80	„	„ Cajuputi	Do
5	„	„ Cinnamomi	Do.
250	„	* „ Garciniae Purpureae	Goa and Malabar.
69	„	„ Gurjun	Calcutta
13	„	„ Lini	Local market.
7	„	„ „ Boiled	Do
473	„	* „ Menthae Piperitae (China)	Do.
165	„	„ Santali Albi	Malabar and Cawnpore
2,601	„	„ Terebinthinae Purificatum	Local market.
100	„	Piper Nigrum	Malabar
31	„	Pix Burgundica	Local market.
606	„	„ Liquida	Do
927	„	* Potassii Nitras (clean crystals free from salt) *	Cawnpore, Lahore and Punjab
8	„	Pterocarpi Lignum (Red Sandal-wood)	Malabar.
1,267	„	* Resina Nigra	Local market
76,461	„	* Ricini Semina (small seed, Billimora, or similar to it)	Guzerat and Kathiawar.

See page 133.

INDIGENOUS DRUGS :

Bombay.

APPENDIX V.

List of Country Medicines, etc., procured by the Medical Storekeeper, Bombay, by annual contract, from 1st April 1806 to 31st March 1807—contd.

Quantity		Names of Articles.		Locality.
29	lb	Rose Petals		Local market.
200	„	Saccharum Purif (Loaf)		Do.
1,034	„	* „ „ No. 1		Do.
700	„	* Salt		Do.
524	„	Sapo Durus (Cocoanut Oil Soap)		Do
400	„	* Scilla Radix Exsiccata		Bandora and Versova.
611	„	Senna Folia (Tinnevelly, large leaf)		Malabar.
27	„	Styrax Præparatus		Aden, Basra, and Singapore
634	„	* Theriaca (best quality of Treacle)		Bassin and Mauritius.
5	„	Thymol		Japan, China, and Ahmedabad.
100	„	* Turmeric (Bengal)		Malabar.
167	„	* Uva Passæ (Black Raisins)		Sind, Arabia, and Kabul.
912	„	Whiting, in casks		Local market.
729	„	* Zingiberis Radix (best bleached Cochin)		Malabar.
8	ozs	Alfajan	Rate of each article to be given separately, and not for the whole. Ingredients for tincture Warburg. See ...	Local market.
10	„	Azkir		Do.
4	lb	Bhaplee		Do.
3	ozs	Ervadose		Do.
9	„	Fœniculi Fructus		Do
7	„	Gazarbee		Do.
1	lb	Ghaikoon		Do.
7	ozs	Habul Balsum		Do
8	„	Jawashire		Do.
5	„	Jewetri		Do.
1	lb	Kachoore		Do.
5	ozs.	Lendi Pipli		Do.
3	oz	Ooplite		Do
7	„	Safed Mirri		Do.
4	„	Tamalpatri		Do.
10	„	Tori		Do.
3	„	Vekhand		Do.
408	bottles	Sherry Wine (best quality)		Do.
3	dozen	*Brandy (Hennessy's 3 Stars)		Do.

(B) Articles obtained direct, not by contract.

Kino	from	Malabar.
Ganja	„	Sattara.
Opium (Malwa)	„	Collector of Customs, Bombay.
Cantharis	„	Morar, through Commissariat.
Paraffinum durum	„	Calcutta Depôt, local product.
Argentum Purificatum	„	Bombay Mint.
Potass Nitras pura	„	Gunpowder Factory, Kirkee.

TO PARA 8 OF THE REPORT.

(*B*) *Articles obtained direct, not by contract*—contd.

Morphiæ Hydrochloras ,, Acetas Codeina	from Ghazipur.
Taraxacum Hyoscyamus Extract ,, Folia Colocynth Fructus	Taraxacum has also been procured from Ooty. Saharunpur.
Eucalyptus oil Quinine and Cinchona Febrifuge Cinchonæ cortex, mossed and unmossed Digitalis Folia Jalapæ Radix	

APPENDIX VI.

Extract of letter from the Medical Storekeeper, Bombay, to the Reporter on Economic Products to the Government of India, Calcutta.

Turpentine.

2. ***Turpentines.***—Indian turpentine is not used at the Bombay Medical Stores Depôt as it is not produced, so far I am aware, on this side of India and is not obtainable in the local market. The imported article is alone used here to the extent of about 2,200lb a year, but there is no known objection to the substitution of the Indian product provided the cost be favourable. Within the past few months I have distilled with water, in the laboratory of this Depôt, 42lb of the Gundah biroza of **Pinus longifolia** and obtained 6lb of turpentine and 30lb of resin. This turpentine would, in my opinion, be a suitable substitute for the imported article, but a market would have to be found for the resin so as to reduce the cost of the turpentine to the required level. This department would probably be able to utilize only a small quantity of the resin in whole or part substitute for Resina nigra and Burgundy pitch.

Conf. with p. 116.

3. ***Gum Arabic.***—The gums found in the Bombay market may be classed as follows, *viz.*, (1) Karachi, (2) Aden, (3) Billimora, (4) Cutch, (5) Ghati, (6) Amraoti. The first two varieties are used here for medical purposes to the extent of about 2,240lb a year. The annual consumption of Gum Arabic by the four Government Medical Store Depôts of India amounts to about 4,000lb. The Depôts at Calcutta and Madras are supplied through this Depôt with Karachi or Aden gum, but it is not known what variety of the gum is used at the Mian Meer Depôt. The following particulars have been received from the leading private Chemists in Bombay:—

From Messrs. Kemp & Co.

Conf. with p. 154.

"We do not use much Gum Arabic in our firm, hardly any, except for pharmaceutical purposes, British Pharmacopœia preparations, etc., perhaps about half a ton per annum. We have tried the gum of **Anogeissus latifolia** and this answers well, but as it possesses about double the viscosity of Gum Arabic, half the quantity should be used. The white Gum Arabic from Karachi, Jafarabad or African Ports is equally suited for making Pulv. Acaciæ. We have exported considerable quantities of gum

INDIGENOUS DRUGS:

Bombay.

Gum Arabic

to America, but none during the last few years, probably because very good gum can now be obtained from Brazil and Liverpool."

From Messrs. Treacher & Co.

"The gum used by us for pharmaceutical purposes is what is generally known as 'Turkey'—which we import from England, gum procurable in Bombay being not sufficiently clean for pharmaceutical use. We use about 1 cwt. of Karachi gum and ½ cwt. of Aden gum a year. The former is generally used for mucilage for sticking, etc. From our experience Aden gum is better than Karachi.

"The reason the gums brought here are not used for pharmacy is that they are too mixed; it frequently happens that samples of very clear and clean gum are almost insoluble in water. If Aden gum be carefully picked, it is possible to make a very good mucilage, thick and clear and nearly equal to Turkey gum mucilage, but great care requires to be exercised in the selection."

From Messrs. Phillips & Co.

"We have several times purchased gum in India, but it has always proved unsatisfactory, being dirty and not making a good mucilage, and consequently we have not yet given up ordering our gum from England. We are still on the look-out for a satisfactory gum obtainable in this country, but so far have not met with such."

From the Army and Navy Co-operative Society.

"We use Gum Acacia (Suakim) as far as possible for pharmaceutical purposes which we import from London. We find, however, that Aden gum as sold in the Bombay market, when picked, is suitable for almost any purpose for which Gum Acacia is officially ordered. This is the only gum of which we have any knowledge except a gum called 'Bussorah' which we tried and did not find suitable as it makes a mucilage similar to Tragacanth."

Karachi, Aden, Ghati and Amraoti gums are shipped to Europe, the last named, there is some reason to believe, under the name of Karachi gum. When not disposed of locally, each variety is picked and sorted into four lots, the first and second of which are exported and the two inferior pickings are retained for local consumption. The fourth sort is sometimes also exported as such.

It will be, therefore, seen that, allowing for the difficulties apparently experienced by some pharmacists in obtaining in India their exact standard of gum, the Karachi and Aden gums are used generally for pharmaceutical purposes. A statement attached to this report, and which speaks for itself, shows the export of gums to foreign external ports from the port of Bombay during the years from 1890-91 to 1894-95.

3. ***Opium.***—I have had no personal experience in opium cultivation and manufacture, but, speaking generally, it appears to me that conditions of soil and climate would be most likely to influence the

Opium

Report, pp. 6, 13 App., pp. 121, 141 150.

INDIGENOUS DRUGS:

Bombay.

APPENDIX VI.

alkaloid value of the poppy. The exact age or period at which the pod should be scratched seems important, for if the juice be too watery it may not contain the full percentage of alkaloid, and if too thick it may not readily exude and consequently some alkaloid would remain behind. Hence apparently the necessity of tapping the pod at the proper time.

With the exception of the alkaloids, all preparations of opium required for the use of this Depôt are manufactured here. Those mentioned in the margin are the special preparations, besides which, other medicinal compounds containing opium are also manufactured at this Depôt. The yield of the extract obtained here from Indian opium by thoroughly exhausting the drug averages 72·7 per cent., while in Squire's Companion to the British Pharmacopœia, edition of 1894, the yield is stated as 50 per cent., presumably from Turkey opium. The process followed here is not confined to the British Pharmacopœia directions, but it appears to me that the more thorough method of exhaustion observed here does not sufficiently account for the wide difference in the above results. Samples of the opium preparations specified above in the margin can be furnished as well as samples of all compounds manufactured here containing opium if required.

Extract Opii.
" " Liquid.
Pulv "
Tinct. "
Vinum "

Conf. with Report, p. 77, and App., p. 156.

4. *Aconites*.—The tincture is prepared here from the **Aconitum Napellus** obtained from England and the liniment from **Aconitum ferox** procured in the local market. The root of the Indian **Aconitum Napellus** is also procurable at Bombay, but as it is preserved in cow's urine by the natives it has not been used in the preparation of the tincture. Natives recognise two forms of **A. ferox**, *viz.*, the horny or Singoria and farinaceous or pithoria according to the nature of the fracture. These two varieties of the ferox have been used here indiscriminately in the preparation of the liniment, either mixed or separately. Individual roots of the ferox present varying physical appearances suggesting a variety of species. Conditions of soil, climate and local custom as to the age at which the roots are dug up, may to a large extent account for the varying appearances just referred to. It is believed that about 15 cwt. of aconite root, mainly ferox, is brought into the Bombay market yearly, and is chiefly consumed locally; very little export having so far taken place. Calcutta and the Panjab appear to be the sources from which Bombay derives its supply. The local market rates are as follows:—

Aconitum Napellus	10 to 12 annas per lb.		
" **ferox**	5 to 6 "	"	
" **heterophyllum**	R1	"	

The root of the **Gloriosa superba** is used to adulterate aconite. It is said that an aconite plant occurs in the Panch Mahals and Kathiawar Districts of this Presidency and inquiries are being made in view to ascertaining whether this is the case.

5. *Bael Tree.*—The liquid extract is the only preparation of Bael manufactured at this Depôt, samples of which can be supplied. The following information refers to the printed questions regarding the **Ægle Marmelos** issued by the Reporter on Economic Products:— *Report, pp. 8, 11, 13, 27, 61, and App., pp. 117, 118, 182, 309.*

I.—The tree.

(1) The local vernacular names of the tree are *Bel* and *Bil* or बेल and बिल.

(2) Sometimes planted in gardens as mere curiosity or for medicinal purposes, but its general use under such circumstances is for the preparation of pickles. It is also generally planted in the vicinity of Hindoo temples and the shape of the leaf is considered to be emblematic of the Hindoo Trinity. The leaves are offered to Shunker or Mahadeo by thousands and to his various incarnations in smaller quantities. Some Hindoos who have spare ground around their houses plant trees for this purpose. These trees are sometimes found here and there in villages in the vicinity of forests, and they are also found growing wild in forests but to a small extent as compared with other jungle trees.

(3) There are no such varieties known here Fruits of different sizes and shapes are found on the same tree. A tree cultivated in rich soil, sufficiently watered, produces comparatively larger fruit, and a tree so placed assumes generally larger proportions. The "Deccan" is larger than the "Konkan" fruit, so that a dry, as compared with a moist, climate appears to be the more favourable. Samples of the Calcutta fruit seen here are very much larger than those met with on this side of India.

(4) A distinct spineless form of the tree is not known here, but old trees seem to be spineless, as the spines have disappeared from the trunk and main offshoots either from natural or artificial causes or both. But the fact that spines are present on the younger branches, in every instance examined seems to exclude the existence of a separate spineless form of the tree in this neighbourhood.

(5) A form of tree with oblong fruits is not known here. Fruits of varying shapes and sizes, including "oblong," are found on the same tree. Bael Fruit.

(6) If the tree be on good soil, well protected from injury and sufficiently watered, it will yield fruit in from 5 to 8 years; otherwise it will take 15 to 20 years.

(7) The tree flowers in April or May when all the old leaves have fallen and the new leaves have begun to appear. The fruit ripens about ten months later.

II.—The Unripe Fruit.

(8) Natives do not use the unripe fruit for medicinal purposes, but the pickle prepared therefrom is considered to be admissible in illness when other forms of pickle are said to be contra-indicated. The half-ripe fruit is adopted by the *British Pharmacopœia*, but the rind only of the ripe fruit is used at this Depôt in the manufacture of Extractum Belæ Liquidum.

(9) Although not generally known, the smaller fruits of the forest tree are believed to be better suited to medicinal purposes, but the large and small are used indiscriminately.

(10) With the exception of the pickle which is used medicinally, the unripe fruit is rarely used in native practice.

(11) The fruit is not preserved entire but the unripe fruit is cut into thin slices and preserved in syrup. The fruit is boiled in a fairly thick syrup so that the finished product should be of the required consistence.

To make the pickle the small unripe fruit, before the rind becomes hard, is cut into quarters but not completely severed, all four pieces remaining attached to one another at one point. Salt is then applied to the cut surfaces and the space between the segments is then filled up with various mixtures of spices. If it is intended to use vinegar, the fruit so treated is placed in vinegar on the second day, otherwise they are at once placed in a jar; sometimes in the same vessel with mangoes also similarly treated.

(12) Occasionally they are found in the bazár, but there is practically no trade in them. If required they have to be specially ordered.

III.—The Ripe Fruit.

(13) Not used as food here but as medicine. The pulp is dried and kept in shops and houses for sale or use as a medicine. The pulp is also used by some for making marmalade. The rind is generally thrown away, but it is sometimes used for making the fluid extract of the *British Pharmacopœia.*

(14) The fruit is not, so far as I am aware, eaten raw.

(15) They are not preserved whole. The object being to preserve the pulp, the fruit is either first dried, broken into fragments

and the pulp extracted, or the fruit is first broken into pieces and the pulp removed and dried. The latter process is preferred.

(16) The ripe fruit is mostly used for this purpose.

IV.—The Rind of the Fruit.

(17) Not known in Bombay as a dyeing substance.

(18) The rind of the unripe fruit is not used, but that of the ripe fruit is used by a few for the preparation of Extractum Belæ Liquidum (*British Pharmacopœia*).

The hollowed out dry fruit is used for keeping snuff and chusnums (ashes for religious and medicinal purposes) in the absence of a more suitable receptacle. This shell is also used as a gunpowder flask. The ornamental boxes are not known here.

V. The Gum

(19) Have not seen or heard of a white gum. Have obtained from a tree, growing in the compound of the Bombay Medical Store Depôt, by longitudinal and transverse incisions into the trunk and main branches, during May and the early monsoon months, a dark amber-colored or brown gum. This gum does not appear to exude spontaneously. The gum is not obtainable here in any quantity.

(20) Mucus fluid is not isolated and so used for any specific purpose separately or apart from the pulp.

VI.—The Seeds.

(21) The seeds are not separated or used alone for any particular purpose. They are used together with the pulp to which they belong.

VII.—The Leaves.

(22) The fresh juice is given with honey as a laxative and febrifuge. It is also used in asthma, and with the addition of black pepper in anasarca with costiveness and jaundice. Moreover, in external inflammations, it is given to correct the supposed derangement of the humours. It is one of the ten plants which go to form the dusamla, a compound decoction often mentioned in Sanskrit works (*Pharmacographia Indica*). These leaves belong to the Hrasva Mula or the five minor plants.

*

VIII.—The Root.

(23) The root bark is used as a remedy in hypochondriasis, melancholia and palpitation of the heart (*Pharmacographia Indica*, Vol. I, page 278).

IX.—The Bark.

(24) Not known. There is a religious prejudice against removing the bark.

INDIGENOUS DRUGS:

Bombay.

Bael Fruit

APPENDIX VI.

X.—The Flowers.

(25) It is not known whether the flowers are put to any particular use.

XI.—The Wood.

(26) Yes.

(27) The wood is not used for any particular purpose.

Your most obedient servant,

J. PARKER, M.D., *Surgeon-Major,*
Medical Storekeeper to Government, Bombay Command.

APPENDIX VII. TO PARAS. 28 AND 39 OF THE REPORT.

A Note communicated by George Watt, M.B., C.M., C.I.E., Reporter on Economic Products to the Government of India.

At the second meeting of the Indigenous Drugs Committee I formally moved the following resolutions that—

"This Committee endeavour to procure the evidence of experts on— — Expert Opinion. Conf. with pp. 2, 9.

(*a*) the indigenous drugs that should be selected for the purpose of special investigations, and

(*b*) the nature of the preparations that had better be made from these.

"Further, that it has been found essentially necessary that local committees be formed in each important centre throughout India to co-operate with the Central Committee in Calcutta. That the Government of India be, therefore, invited to consider the desirability of creating branch Committees in Bombay, Madras, Karachi, Lahore, Allahabad, Nagpur, and Rangoon." — Local Committees. Conf. with p. 9.

These resolutions were brought before the meeting at a rather late hour. I, however, endeavoured to justify my recommendations very briefly when the President said that he thought it, perhaps, would be the better course for me to circulate the above together with my remarks in justification of the proposed resolutions. I gladly avail myself, therefore, of the opportunity thereby given me to commend the above to your favourable consideration. The following are the remarks prepared by me and which were partly read at our last meeting:—

It seems to me that a report framed on our united opinions, unaided by others whom we could consult, will not very possibly carry with it the conviction essential to a successful solution of the problems placed before us. I anticipate, for example, that should the result of our deliberations prove opposed to my very definite recommendations, the prospects of a more extended use of the indigenous drugs of India may be retarded half a century and this result I for one would deplore very greatly. — Report based on Opinion.

The problem of the indigenous drugs has never to me presented the question whether any one or all collectively are superior or inferior to imported drugs of corresponding properties. Some I know are very good, others undoubtedly useless. But are they — Relative Importance of Drugs.

Dr. WATT'S NOTE

Aid to the Village Practitioner. Conf. with Report, p. 9.

sufficiently cheap to compensate for any loss in remedial value as compared with imported drugs? If they are, then it seems to me that this Committee in recommending certain drugs to be tried by Government, more extensively than hitherto, are leading in the far more important task of directing the attention of the village practitioners to a selection of the indigenous drugs of greatest merit. Our responsibility is, therefore, considerably wider than might at first sight seem. In other words, when viewed in the light of the teeming millions of population and the limited funds at the disposal of the Government, the point of most pressing urgency may be said to be: Can a selection be made possessed of sufficient remedial values, that in the interests of humanity might be three or four times more widely distributed than could be accomplished by the expenditure of the same sum upon imported drugs? I fully admit that the stalls of the village herbalist contain much that is useless, but the labours of this Committee might fairly well be directed to making a selection, and by giving the weight of its superior knowledge, urge the few of undoubted merit to a more extended use.

The Few of Value. Conf. with App., p. 357.

The drugs of Europe have been submitted to careful therapeutic and physiologic tests and have been chemically analysed. In prescribing such drugs we know what we are doing, whereas with the bulk of the indigenous drugs, long years of careful investigation may be necessary before we can expect to know half as much about them as we know of the European drugs.

European Drugs.

Selection.

To remove any suspicion that the selection that may be made was hastily prepared: that it bore little relation to existing knowledge: that it was not framed in relation to local conditions and requirements —I would strongly urge that we call to our aid Native and European practitioners of high repute and pharmaceutical chemists, both Native and European, and that we pointedly ask them to name the indigenous drugs they are in the habit of prescribing or compounding for certain diseases. If we cannot make a tour throughout India to personally collect such information (which I believe would be the most satisfactory course), then I would recommend that with the sanction of the Government of India local committees be appointed to sit in each important centre, and that these committees collect information on the lines that we may indicate by a carefully framed series of questions.

Conf. with p. 128

Tour throughout India. Local Committees. Conf. with pp. 160, 163, 166, 171-77

Preparations. pp. 202, 280 & 302-03, 354.

It would, moreover, seem to me that the enquiry into the most serviceable preparations to be made of the better known indigenous drugs should be brought before this Committee, as its last, not its foremost, consideration. For example, supposing that a drug be

selected as specially worthy of enquiry that occurs in all the drug shops of Bengal, but is utterly unknown in those of Bombay, we might just as well, in fact better, recommend the imported drug for which it may be but a cheaper substitute. Dr. McConnell alluded at our last meeting to *kúrchi* bark as an indigenous drug of fairly frequent use. Now it will be found that on page 137 of the *Pharmacopœia of India* that drug is treated as non-officinal, while immediately above on the same page the bark of Alstonia scholaris—the *dita* bark—is regarded as officinal. They have both attributed to them very nearly the same therapeutic properties, and are both recommended for the advanced stages of dysentery. Now what I should like to know is this: Has the quarter of a century that has elapsed since the Pharmacopœia was written changed in popular favour the respective positions of these indigenous drugs? The preface to the Pharmacopœia is careful to explain the principle on which certain of the indigenous drugs of India had been treated as officinal, and others relegated to the status of non-officinal. The Editor remarks that some of the officinal drugs "will doubtless, on trial, prove worthless, and will justly be discarded in future editions; whilst others, it is expected, will prove valuable remedial agents, and worthy of being eventually transferred to the officinal class.' I am fully aware that we are not called upon by the Government of India to prepare a revised edition of the Pharmacopœia. But the point I would wish to urge is this—Are we justified, upon our own knowledge, in proposing that *kúrchi* may be tried in preference to the Indian Pharmacopœia preparations of *dita* bark? I would even go further and ask: Have the preparations of *dita* bark recommended in the *Pharmacopœia of India* ever been tried in our hospitals and dispensaries? And, gentlemen this is but one example out of a whole volume of such instances. It seems to me, therefore, that we would not be justified in laying down hard-and-fast rules without a body of evidence, which in my opinion we do not at present possess.

Conf. with the Report, pp. 2, 8, 11; App., p. 115.

Kurchi *versus Dita* Bark.

Indian Pharmacopœia.

Expert Evidence Essential.

Dr. Parker has just alluded to his having in stock a large supply of very superior Kino which he had procured locally, while Dr. Warden has admitted that the Kino used at the Calcutta Stores is imported. Here, then, we have an example of the value to this Committee of knowledge of local resources. On the table I have placed a set of samples of Aconite, Gentian and Podophyllum, etc. These and such like are indigenous to India, but because of their being officinal in the *British Pharmacopœia*, we have come practically to exclude them from the definition of "indigenous drugs." The Committee will doubtless deal with the problem of an extended utilization of our Indian supplies of such drugs, but in my opinion

Indigenous Drugs not treated as *Conf. with the Report, p. 5, and App., p. 120, 127, 132.*

Rhubarb. *Conf. with Report, para. 97(5), App., p. 151.*

we require local aid to assist us in determining many points connected with them. I would mention, for example, a case in point. While in Baijnath, a town in Kulu, I learned that over 1,000 maunds of Rhubarb root had been that year exported to the plains of India. I had no idea previously of the existence of such a trade, and I do not find it stated in any of the numerous publications on Indigenous drugs that Baijnath is a recognized market in the supply of that drug, nor, indeed, that so large a quantity of that root is annually used up in India. The *Pharmacopœia of India* remarks that were the Himalayan Rhubarb cultivated with due care, there is reason to believe that a good serviceable drug, equal to Chinese or Turkey Rhubarb, might be obtained. I need scarcely add that we are precisely in the same state of ignorance to-day as we were in 1868 in regard to the present position and future prospects of an Indian Rhubarb supply.

Condition of Ignorance.

It is true a large number of books have been written on the subject of indigenous drugs, but I am satisfied these with but a few exceptions are mainly compilations and only rarely express personal knowledge. I at all events accept that view as perfectly applicable to my own writings. At the late Medical Congress I placed on the tables a collection of drugs that had been purchased for me at Nagpur. I asked my correspondent to go into any herbalist's shop conveniently and to procure for me a specimen of everything he sold. When the collection of some 30 drugs came to hand, I found I could only identify a very small percentage. At the meeting of the Congress, at which these drugs were shown, a large number of gentlemen had assembled, many of whom have been foremost in the advocacy of an extended use of indigenous drugs. My colleague, Dr. Kanny Lall Dey, C.I.E., was there, but neither he nor any of the other gentlemen assembled could help me to identify the collection. I mention this circumstance in justification of my contention that the literature of indigenous drugs but very imperfectly represents more than the conditions of one or two centres such as Bombay, Madras and Calcutta. We may make, therefore, an admirable selection from the better known drugs of the centres named, but I anticipate that any such selection will be found to be of little practical value to India as a whole, unless our enquiry is of a more extended nature than would seem at present contemplated.

Indian Compilations. *Conf. with p. 128*

Nagpur Drugs.

Selection should be applicable to India.

GEORGE WATT.

APPENDIX VIII. TO PARA. 25 OF THE REPORT.

INDIGENOUS DRUGS

Bengal.

Note by Rai Bahadur Kanny Lall Dey, C.I.E., on the best Indigenous Drugs to be used in the treatment of Bowel Complaints and Malarial Fevers.

Bowel Complaints.

1.—**Ægle Marmelos**; BENG. *Bael.*

Report, pp. 8, 11, 17, 27, App., pp. 117, 137 10, 182, 309

Part used.—Fruit—unripe or half-ripe.

Medicinal use.—Chronic Dysentery and Diarrhœa specially when unattended by fever and the patient is weak or dyspeptic.

Preparation.—Take of unripe or half-ripe fruit. Cut in slices; fill up a stone jar. Macerate the contents for three months in equal parts of water and proof-spirit. Pour off the liquid through a fine sieve Repeat the process a second time for a fortnight, mix the two preparations.

Dose.—For an adult, one to two fluid drachms.

2.—**Plantago ovata**; BENG. *Isafgul.*

Report, pp 11, 62, and App., pp 137, 182

Part used.—Seeds.

Medicinal use.—Chronic Diarrhœa—especially Hill diarrhœa and dysentery.

Preparation.—A cold infusion from the mucilaginous portion of the seeds. Dr. Joubert recommends in spoonful doses (seeds) steeped for 15 or 20 minutes in water.

Dose.—It has no astringent property.

3.—**Holarrhena antidysenterica**: BENG. *Kurchi.*

Report, pp. 2, 8, 11, and App., pp. 117, 118 152, 171 180

Part used.—Tender part, or root bark.

Medicinal use.—Astringent, anti-dysenteric, febrifuge, and anthelmintic.

Preparation.—Solid and liquid extracts.

Dose.—10 *grs.* to 15 *grs.*

½ *drachm* to one *drachm.*

Fevers.

1.—**Berberis aristata, Berberis Lycium** *and other species*; BENG. *Darhaldi.*

Report, pp. 11, 13 App., pp 149, 180

Part used.—Root bark.

Medicinal use.—Fevers of all types specially in intermittent and remittent fevers. Unlike quinine repeated doses do not produce depression or deafness.

Preparation.—As originated in the United States Pharmacopœia, one part of the product representing one part of the original drug operated upon. (*Sundry.*)

Dose.—Fifteen to twenty drops.

Note.—The active principle is the alkaloid—Berberine

Report, pp. 11, 12, 13, 58 : App., p. 181.

2.—**Cæsalpinia Bonducella**; BENG. *Nata-karanja.*

Part used.—Seeds or nuts.

Medicinal use.—Powerful tonic and valuable febrifuge.

Preparation.—Powder.

Dose.—Ten to fifteen grains.

Report, pp. 8, 9, 11, 37, 16, 51, 55, 61; App., pp. 262-65, 293-96, 376.

3.—**Calotropis gigantea**; BENG. *Akanda.*

Part used.—Leaves (mature).

Medicinal use.—Intermittent fever during remission. Febrifuge. Fevers associated with eczema and other skin diseases.

Preparation.—Same as in the case of No. I.

Dose.—One to five drops.

Report, pp. 11, 14, 62. App., p. 179.

4.—**Hydrocotyle asiatica**; BENG. *Thalkuri.*

Part used.—Fresh plant (entire).

Medicinal use.—Periodic fever, called symphatic or moon fever, associated with affections of cellular tissues, elephantiasis and enlarged scrotum.

Preparation.—Same as in the case of No. I.

Dose.—One to two drops. Large dose causes irritation.

Report, pp 12, and App., pp. 157, 180.

5.—**Melia Azadirachta**; BENG. *Nim.*

Part used.—Inner bark or liber.

Medicinal use.—Febrifuge. Intermittent and other fevers. Bitter tonic in general debility. Obstinate cough with fever, asthma.

Preparation.—Same as in the case of No. I.

Dose.—Ten to fifteen drops.

Note.—The inner bark when moistened with water, produces sulphur compound of allyl.

Report, pp. 12, 63: App., p. 179.

6.—**Soymida febrifuga**; BENG. *Rohian.*

Part used.—Bark.

Medicinal use.—Intermittent fever and general debility and in dysentery and diarrhœa associated with fever.

TO PARA. 25 OF THE REPORT.

INDIGENOUS DRUGS: Bengal.

Preparation.—Same as in the case of No. 1.

Dose.—12-20 drops.

7.—**Anarcotine**, *one of the Alkaloids of Opium.*

Report, pp. 6, 12, 14, App., pp. 121, 132, 135, 180.

Anarcotine is a chemical component of opium and was formerly known as Narcotine. It has no narcotic properties and was formerly much used as an antiperiodic in intermittent fever and ague. Dr. Sir William Roberts re-advocates its use in place of quinine and cinchona febrifuge. It has one advantage over quinine, *viz.*, it is soothing to the bowels, when quinine disagrees.

Dose.—Five grains.

APPENDIX IX.

Notes on some useful Indigenous Drugs by Mr Amulya Charan Basu — Drugs which he says he prescribes almost daily.

Conf with pp 153 183

1. *Kaladana*—**Pharbitis Nil (—Ipomœa hederacea)**.—I use it often and I believe it is a safe and effectual purgative. I use the solid extract as well as Dr. Waring's compound powder.

Report, pp 8 9, 11, 37, 46, 51

2. *Akanda* or *Madar* **(Calotropis gigantea)**.—I have used it with some success as a febrifuge in the form of a tincture made from fresh leaves in 1 to 5 min. doses.

Report, p 14, and App., pp 157, 180.

3. *Kalmegh* **(Andrographis paniculata)**.—A very good cholagogue laxative, febrifuge and bitter tonic. I use it almost every day as a liquid extract of the leaves in ½ to 1 dram doses.

Report, pp 14, 27, 29, App., p 181

4. *Ayapan* or *Bisalya Karani*.—I do not know its scientific name.* I believe it is the best hæmostatic known. I have used it very successfully in bleeding from the nose, lungs, bowels, etc. I prescribe the juice of fresh leaves in teaspoonful doses.

Conf with pp 30, 38, 47, App., p 180.

5. *Vasaka* or *Bakas* **(Adhatoda Vasica)**.—An excellent antispasmodic and expectorant. I have used it very successfully in all forms of lung complaints (including asthma) and in infantile and puerperal convulsions. It is also a good antiseptic and I think a fair trial should be given to it in Phthisis in which the *kabirajes* extol it. I use the fresh juice of the leaves in dram doses and also a syrup made from the leaves and young twigs in 1 to 2 dram doses.

6. *Haritaki* **(Terminalia Chebula)**.—I have found it useful in habitual constipation and in alternate constipation diarrhœa.

Report, pp 2, 8 11, and App pp. 143, 145, 157, 179, 180.

7. *Kurchi* **(Holarrhena antidysenterica)**.—Its use in dysentery is well known. In the very acute stage it does more harm than good. It should be used when the more acute symptoms have passed off and in the chronic form of the disease. Only the fresh bark should be employed. Barks even a few days old are almost useless. Liquid extracts and other preparations made from the fresh bark keep well and may be used when the fresh bark is not available.

8. *Punarnava* **(Bœrhaavia diffusa)**.—An excellent non-irritating diuretic. I use it in preference to all other diuretics. I have found it useful in all forms of renal and hepatic dropsies, jaundice, cholera, puerperal convulsions, etc. In cardiac dropsy it does not act unless given in combination with Digitalis or Strophanthus. It acts better in combination with old dried *radish* **(Raphanus sativus)**.

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* Eupatorium Ayapana.—Geo. Watt, *Hon Sec*.

I use the two together as decoction (in ʒii doses) and as an aqueous liquid extract (in ʒi to ʒii doses). Dr. R. L. Dutt lately used a liquid extract made with spirit and water but did not meet with success.

9. *Musabbar* (Indian aloe).—An excellent external application in inflammatory swellings.

Conf. with pp. 116, 126, 158.

10. *Rasat* or *Rasangara*.—An extract prepared from *Daru haridrá* (Berberis asiatica). I use this as an external application around the orbit in inflammatory affections of the eye, especially those attended with much pain and swelling.

Report, pp. 11, 13; App. pp. 145, 180

Dr. WARDEN'S SCHEME.

APPENDIX X.

COMMUNICATED BY SURGEON.-LIEUT.-COL. C. J. H. WARDEN, M.D.

A Permanent Scheme for collecting Information regarding and ascertaining the Therapeutic Values of Indigenous Drugs.

Conf. with App., pp. 141-49.

I agree generally with Dr. Watt's remarks regarding branch committees. I consider, however, that we are not going quite the right way to work. We are going to repeat for the third time the experiment of *recommending* certain drugs for use. The experiment first suggested by the Editor of the *Bengal Pharmacopœia* in 1844 was the utilization of a considerable number of drugs long used by Native practitioners, but not generally recognized in pharmaceutical works. Waring in 1868 in the Pharmacopœia of India again drew attention to certain indigenous drugs which might be used in lieu of imported ones. The practical outcome of the two Pharmacopœias is that, 52 years after the publication of the first one, fewer indigenous drugs appear to be used! In my opinion it amounts to waste of time to compile Pharmacopœias, or to recommend lists of indigenous drugs as substitutes for imported articles, if we omit to teach men the use of such substitutes clinically. A student who has seen a case, say, of dysentery at his College Hospital, treated with Ipecacuanha, is hardly likely to use later in life one of the indigenous substitutes, if he can procure Ipecacuanha: and similar remarks apply to other substitutes. The question of the extended use of indigenous drugs resolves itself into a very narrow issue: they are, or are not, substitutes. And the point at issue can only be determined, I think, in one way. And the first step, in my opinion, is to ask Government to select certain schools of medicine where native students are taught, and to equip these schools with indigenous drugs and their preparations, to the exclusion of all imported vegetable ones. We have in Waring's Pharmacopœia an excellent hand-book to make the preparations according to the directions given in that work, or modify the processes if requisite: but let that work be the basis. Waring's book contains substitutes for practically any drug contained in the *British Pharmacopœia*. Mineral drugs, and most of the alkaloids, must still be imported articles, and would necessarily have to be supplied to the selected schools. At present there are, I believe, no manufactories in India which can turn out such salts at cheaper rates than they can be imported. One great reason for pushing the use of indigenous drugs is that the cost of medicines will be considerably reduced, and that it would be possible by the extended use of indigenous drugs, to support, say, two dispensaries, at the cost of one equipped

Historic Facts.

Conf. with Report, pp. 6, 60.

Supply of Type Specimens to Medical Schools.

Comparative Cost of Indigenous and Imported Drugs. *Conf. with App., p. 128.*

Dr. WARDEN'S SCHEME.

with imported articles. I think there is a fallacy in this assumption, the cost of purely vegetable drugs, excluding quinine is but smal when compared with that of mineral preparations and alkaloids. I car make this clear by giving an instance,—an indent on the Secretary o State for drugs and preparations cost £2,435, and of that sum £35: represented the value of purely vegetable drugs and preparations, Ipecacuanha alone costing £199. The balance therefore left for other vegetable drugs was not large.

Provincial Committee

In each province of India I would suggest a standing sub-committee with the head of the Medical Department as President, and a Central Standing Committee in Calcutta. The local committees would supervise the schools in which indigenous drugs are used, collect information generally on the subject of indigenous drugs, and submit reports to the Central Committee. The information thus obtained would be digested, further reports on any points requiring elucidation called for, and, from time to time, a collective note published, recommending the use of new drugs, or the abolition of those found useless, and giving generally all new informations on the chemical composition, and therapeutic action, and pharmacy of indigenous drugs. These notes might be similar to the ones now being issued by Dr. Watt on certain economic subjects, and I would propose that Dr. Watt be asked to accept the Editorship of a medical series.

Publication of Results.

Issue of Preparations. *Conf. with Report, pp 30, 36.*

In this scheme it would be necessary for drugs and preparations to be obtained from central establishments. The Calcutta Medical Depot would be prepared to supply Bengal and the Panjab, and the Bombay Depôt might undertake the supplies for Madras and Bombay. It is most essential that the preparations used should be made from reliable drugs, and until the men who have to use them are familiar with their physical appearances, I would suggest that ordinary bazár supplies should not be employed, and that dispensaries should not be permitted to make their own purchases in the local bazárs. In the work of obtaining genuine drugs the assistance of the office of Reporter on Economic Products would be most valuable. I would further suggest that Government be asked to permit Medical Depôts to issue all preparations of indigenous drugs at cost price to the selected centres, without the addition of the usual percentages which are tacked on by the Accounts Department.

An Indian Pharmacopœia.

I believe that working in the way I have pointed out reliable information would be obtained, and the question whether indigenous vegetable drugs can be appropriately and profitably substituted for imported ones, settled once and for all. Further, after the lapse of a few years, it might be possible with the data collected to issue a *Pharmacopœia of India* that would contain reliable information,

APPENDIX XI.

A letter received from Surgeon-Major J. Parker, Medical Storekeeper, Bombay, on Indigenous Substitutes for Imported Drugs.

No. G.-2588, dated Bombay, the 21st April 1895.

From—The Medical Storekeeper to Government, Bombay Command, Bombay,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Secretary, Indigenous Drugs Committee, Indian Museum, 1, Sudder Street, Calcutta.

I have the honour to offer the following remarks for the information of the Indigenous Drugs Committee.

2. The collection and drying of indigenous drugs is not properly understood by natives of India and adulteration is largely resorted to, hence divergence of views regarding their therapeutic value and the desirability of cultivation, etc., under skilled supervision, at least for the present. Several drugs, such as Digitalis, Hyoscyamus, Jalap and Taraxacum, are obtained from Saharanpur and the Nilgiris, for Medical Store purposes, and there seems no reason why indigenous drugs should not also be similarly produced and supplied. The Forest Department should also be utilized to some extent in the collection of drugs and their transfer to the Medical Store Department at bare cost price. Some drugs were formerly supplied to the Bombay Depôt from the Hewra Gardens near Poona and the desirability of reviving drug cultivation at that site might also be considered.

Squills

Conf. with Report, pp. 19, 18, 57, and App., pp. 125, 233-42; 289-91.

To be procured from Bombay

3. **Scilla indica,*** LILIACEÆ, Bombay native name=*Bandrúl* or *Jungli-kanda* or *piij*—This drug has been used for the past 20 years at the Bombay Medical Store Depôt as a substitute for **Urginea Scilla.**

"Inhabits the sandy shores near Bombay where it is found growing wild, can be cultivated in light sandy soils." The young small bulbs should be planted in ridges about 1 or 1½ inches below the surface just before the monsoon, much in the same way as onions are cultivated. The bulbs selected for medical use should be of medium size, neither too young nor too old. In the wild state other bulbs are found growing with the **Scilla indica,** and have to be differentiated. Also other bulbs collected on the hills are apt to be offered for sale as **Scilla indica.** The bulbs growing with the **Scilla**

* There are two plants commonly spoken of as being Indian Squills, *viz.*, **Scaill indica,** *Baker* (*Syn.* **Ledebouria hyacinthoides,** *Stend.*); and **Urginea indica,** *Kunth.* (*Syn.* **Scilla indica,** *Roxb.*).—GEO. WATT, *Hon. Secy.*

indica are oblong, not so spherical as the latter and are yellowish on section. The hill bulbs are generally of large size. The process of preparing the bulb, called *killingu*, consists in cutting it up into fragments and drying, this should be carried out in the cold season. The cutting should be done in the early morning so that the segments may be at once exposed to the sun for some hours, otherwise they blacken. Bombay

4. **Ipomœa Turpethum,** CONVOLVULACEÆ, native name=*Nishotar-nisot.*—The dried root and stem of this creeper is said to be largely used by natives as a purgative in doses much the same as Jalap. The drug found in the local market is believed to be procured from the Southern Konkan. It is also found growing wild in the neighbourhood of Bombay, but it is not collected locally. It could be cultivated from the seed or collected by the Forest Department. As the root and stem are very succulent, care would have to be exercised in drying, otherwise the parts may rot. The smaller the pieces into which the parts are divided, the sooner the operation will be complete. They should be exposed to the sun for a day or so after which the dryage can be completed in the shade. The suggested preparations are a powder and the resin extracted with alcohol. The market rate is from $\frac{1}{2}$ to 1 anna per lb, but if specially collected and dried locally the rate would be higher. This drug is proposed as a substitute for Jalap. The latter has recently been procured from Ootacamund at R1 per lb. *Conf. with pp. 120, 183.* To be procured from South Konkan.

5. **Ipomœa hederacea (Pharbitis Nil)** CONVOLVULACEÆ, native name—*Kala dhana* as found in the market.—When collected locally it is called "*Bhovcri*" or a top. It grows abundantly in the wild state in and near Bombay. Action purgative. The seed should be coarsely broken up, well dried and powdered, and an extract can be made with alcohol. This is also a proposed substitute for Jalap, but the amount of gum and water contained in the seed have heretofore been the main obstacle to its introduction. Market rate under 4 annas per lb. In native practice one or two seeds is a dose. *Conf. with pp. 148, 183.* Bombay.

6. **Lobelia nicotianæfolia,** CAMPANULACEÆ, native name=*Deonul, Bhoknul.*—Not found in Bombay market. Grows wild in Southern Konkan (Malwan and Savantwadi). Proposed as a substitute for **Lobelia inflata.** Can be cultivated like tobacco from seed. Preparations same as those of **Lobelia inflata.** South Konkan.

7. **Hemidesmus indicus,** ASCLEPIADEÆ, native name=*Uparsar* in Southern Konkan and *Anantamul* in the Deccan; not found in the Bombay market. Has been specially collected near Bombay for the use of the Bombay Depôt for many years past. Cost 6 to 8 annas per lb. Substitute for Sarsaparilla. Should not be older than one Sarsaparilla Substitute. *Conf. with pp. 124, 131* Bengal, South Konkan, Deccan.

year. Preparations—a syrup and fluid extract. The pods should be collected just before they burst and the plant can be cultivated from the seed or the collection and dryage of the wild plant should be undertaken by the Forest Department.

pecacuanha; Conf. with Report, App 8, 27, and pp., pp. 120, 127. Substitute Conf. with pp. 120, 183.

8. **Naregamia alata**, MELIACEÆ, native name = *Pittvel*.—The stem and roots used; not found in Bombay market. Found wild in Southern Konkan (Malwan and Goa), but not so far discovered in the neighbourhood of Bombay. In Goa it is known as *trifolio* and is used by the Portuguese as Indian Ipecacuanha. It is said to be a perfect substitute for Ipecacuanha. The proposed preparations are powder, tincture and fluid extract. Could be cultivated from the seed or collected and dried by the Forest Department.

Conf. with p. 132.

To be procured from Bengal

9. **Anogeissus latifolia**, COMBRETACEÆ, native name = *Daura*, *Dabria*.—The gum of this tree is proposed as a substitute for gum Acacia as it is cheaper and yields a better mucilage. Should be collected by the Forest Department.

Report, p 61. Conf. with App., p. 183.

Bengal. Konkan.

10. **Euphorbia pilulifera**, EUPHORBIACEÆ, native name = *Naiti* or *Dhudli*.—Not found in Bombay market. Grows wild in the Konkan. Can be cultivated in light dry soil from the seed or collected by the Forest Department. Largely exported to Europe. For action and preparations see *Pharmacographia Indica*, Vol. III, page 247. I understand that a syrup is about the best form of preparation. This drug has to be discriminated from **E. mentifolia*** and **E. bractiata,*** both of which are found growing with it and they are all three called *Naiti* or *Dhudli*. The blossom of the **E. pilulifera** is said to be more pill-shaped than in the other instances. This is the distinction relied on by native collectors.

This drug has been well spoken of and seems worthy of further trial.

Conf. with p. 4.

11. **Cissampelos Pareira**, MENISPERMACEÆ.—Proposed as a substitute for Pareiræ Radix B. P. Preparations same as latter. Not kept for sale in shops. Not generally known as medicinal plant. Root can be collected for 6 to 8 annas per ℔ or through medium of Forest Department.

Salsette; Sind.

12. **Citrullus Colocynthis**, CUCURBITACEÆ, native name = *Indráyan*.—Can be collected in Salsette towards end of monsoon. The pulp of the Indian variety is not so abundant and thick as the imported article. Rind and pulp of Indian variety used after separation of seed. For the purposes of the Bombay Depôt this drug is obtained from the Superintendent, Botanical Gardens, Saharanpur, North-Western Provinces. The seed should be sown at the commencement of the monsoon.

* There must be some mistake regarding these names.—*Hon. Secy.*

TO PARA. 43 OF THE REPORT.

INDIGENOUS DRUGS: Bombay. *Report, p. 27, App., p. 183.* To be procured from Bengal.

13. **Datura fastuosa,** SOLANACEÆ, native name=*Dhatura.*—Could be substituted for the **D. Stramonium** and the roots for Belladonna roots. The fruit and leaves only, found in the Bombay market, not the root. Could be readily cultivated or collected by the Forest Department. Fruit should be gathered and dried just before dehiscence for collection of the seed.

14. **Cocos nucifera,** PALMÆ.—Purified cocoa-nut oil is proposed as a substitute for cod-liver oil, *vide Pharmacographia Indica,* Vol. III., page 515. The kernel of the fresh ripe nut is pulped with a native rasp. It is then kneaded in warm water and the milk pressed out. This milk is boiled when the oil separates in about half an hour and is skimmed off. This oil is not obtainable in the market but is prepared in private houses as required. This oil can be very readily distinguished from the commercial pressed oil, as the latter has a heavy disagreeable odour, while the former has a pleasant nutty odour.

It is said this oil can be taken by patients who cannot tolerate cod-liver oil.

Kangra. *Report, pp 12, 37, and 17; App., pp. 187, 211.*

15. **Picrorhiza Kurrooa,** SCROPHULARINEÆ, native name=*Bál-kadu.*—A well-known native drug. Found in the market in small pieces. Root used. Tonic and antiperiodic in cases of long standing fever. Given to rickety children, hence vernacular name of drug. Preparations—Infusion and fluid extract, might be substituted for Gentian.

Substitute for Chiretta. *Report, p 12, also App., p. 119.*

16. **Clerodendron inerme,** VERBENACEÆ.—Leaves are used. In Bombay this drug has a great reputation as a febrifuge. The medicinal properties closely resemble those of Chiretta. The leaves should be dried in the shade to preserve aroma. Preparations.—Decoction, tincture, powder.

Bengal.

17. **Pongamia glabra,** LEGUMINOSÆ, native name=*Karanj.*—The oil expressed from the seed is said to be useful in scabies, herpes, and other forms of skin disease. It should be mixed with an equal quantity of lemon-juice and well shaken. Also useful externally in rheumatism. Preparations—the oil alone and Linimentum ol. Pongamiæ Camphoratum in lieu of Linimentum Camphoræ (B. P.). Not found in the market but is collected locally by the poorer classes for the purpose of extracting the cheap oil for lamp purposes. The seed could be collected by the Forest Department.

Bombay.

18. **Garcinia indica**—OL. GARCINIÆ PURPUREÆ GUTTIFERÆ, native name=*Kokam-cha-tel.*—This Kokam butter, as it is called, is obtainable in the local market and has been used at this Depôt for many years past in the manufacture of Unguent-

INDIGENOUS DRUGS: Bombay.

Hydrag. Nitratis. Equal parts of the butter and Indian lard are used as the basis.

Conf. with p. 123. To be procured from Burma.

19. **Dipterocarpus alatus,** DIPTEROCARPEÆ.—The *garjan-katel* or *gurjan* oil obtained from this tree is said to be a substitute for Copaiba, and it seems desirable to have the question clinically investigated. The commercial article as obtainable in the Bombay market requires purification before issue to hospitals.

Conf. with Report, p. 65. Bengal. Bombay.

20. **Cæsalpinia Sappan,** LEGUMINOSÆ, native name=*Patang*.—This wood has been used at the Bombay Depôt for many years as a substitute for logwood and is obtainable in the local market; makes a good red ink. Preparations—same as those of logwood.

Bengal. Conf. with pp. 118, 130, 179.

21. **Tinospora cordifolia,** MENISPERMACEÆ, native names=*Gulwail*, *Gharol* and *Galanda*.—Root and stem used. Found in market but often not properly dried and rotten. Had better therefore be collected, dried and sliced by the Forest Department. Largely used in native practice. Tonic, antiperiodic and diuretic. As found in the market it is either in long pieces or in slices like Calumba. Sometimes used to adulterate the latter. Preparations—Fluid Extract and Succus. An extract, infusion and tincture are also spoken of in the *Pharmacopœia of India*.

Bengal.

22. **Eugenia Jambolana,** MYRTACEÆ, native name=*Jámbu*.—The seed is exported to Europe. The bark, fruit and seed are said to be efficacious in diabetes. The seed is used in the form of powder, the bark as an extract. From the fresh fruit a syrup and a wine can be prepared, *vide Pharmacographia Indica*, Vol. II., page 26. The leaves on distillation yield a bright green oil. In order to procure the seed the ripe fruit should be collected at the commencement of the rains. Wash away the pulp and dry the seed. The latter has a strong odour, probably due to an essential oil. Warm air will be sufficient for drying purposes. Not found in market, but found abundantly in the forests in the wild state. Well known to natives, easily collected and very cheap.

Conf. with Report, pp. 12, 13, and App., p. 136. Simla; Kangra.

23. **Aconitum heterophyllum,** RANUNCULACEÆ, native name=*Atis*.—Found in local market. Price about R1 per lb. Has been used as an antiperiodic. Preparation—powder. Tuber fracture should be white and farinaceous. **Aconitum ferox** procured in the local market is used at the Bombay Depôt in the manufacture of the liniment. The **A. Napellus** (India) of the Bombay market is preserved in cow's urine, so cannot therefore be substituted for the imported article. The constant supply of the **A. Napellus** for Medical Store Depôt purposes should be arranged for either by

cultivation at Saharanpur or Ootacamund or by collection at its present native source.

24. **Plantago ovata,** PLANTAGINEÆ, native name=*Isabghol.*—The seed is imported from Persia and is used by Europeans and Mahommedans in the treatment of dysentery. The seed is infused in water sweetened with sugar and the whole is taken unstrained. A strained infusion or decoction is sometimes used with **Holarrhena antidysenterica.** (No. 35 below.)

Conf. with Report, p. 11, and App., pp. 115, 182. To be procured from Bombay.

25. **Peucedanum grande,** UMBELLIFERÆ, native name=*Báphali.*—Fruit used. Practically not found in the market. Fruits collected in the Thana District of the Bombay Presidency by hill men. Forest Department could collect and supply this drug. Action—antispasmodic and stomachic. The fruit has a strong penetrating agreeable odour and contains an essential oil. It is possible this oil could be used as a substitute for oil of peppermint. *Báphali* is an ingredient of **Warburg's** tincture.

Bombay. *Conf. with pp. 123, 182.*

26. **Melia Azadirachta,** MELIACEÆ, native name=*Nimb, Neem.*—Bark is said to be tonic, astringent, anthelmintic and febrifuge Used by natives all over India. Not found in market. Should be collected by Forest Department. Preparation—Fluid Extract.

Conf. with Report, p. 12, and App., pp. 116, 180.

27. **Andrographis paniculata,** ACANTHACEÆ, native name=*Kiryát* or olen-*Kiraita.* Kreat-Halviva.—A preparation of this drug has, within the past few years, been largely advertised in England as a substitute for quinine and as a general powerful tonic. Kiryat is the native Chiretta and is used extensively by them as a febrifuge. Preparations—Succus, Fluid Extract, Infusion, Tincture. The whole plant is used and is collected towards the end of the monsoon and dried in the shade. The dried plant is to some extent found in the market at this season of the year, but, as a rule, the fresh plant only can be obtained from the herbalists. Cultivated at Matunga, near Bombay. Kiryat as a substitute for Quassia and Chiretta, and as a possible means of lessening quinine expenditure seems well worthy of consideration. Chiretta is almost always adulterated and is produced, I believe, in Nepal.

Bengal *Conf. with Report, p. 14; App., pp. 118, 180.* Bengal Chiretta. *Conf. with pp. 119, 155.*

Can be readily cultivated from the seed in shady places.

28. **Ammannia baccifera,** LYTHRACEÆ, native name=*Bha. Jambal.*—An etherial tincture of the leaves is proposed as a substitute for Liq. Epispasticus. A plaster could also be prepared from powdered whole dried plant. Not found in market. Grows wild in rice-fields and low places, and appears above surface towards end of monsoon when the rice crop is removed. Very few

Conf. with Report p. 28; App., p. 184. Bombay.

Bombay.

natives know of its vesicant properties, so collection difficult at present. Not found, as a rule, on forest land; can readily be cultivated from the seed. The **Mylabris Cichorii** (Telini fly) is used at present as a substitute for **Cantharidis**.

Conf. with pp. 121, 184.

Conf. with Report, p. 58, and App., p. 180.

To be procured from Bengal.

29. **Embelia Ribes**, Myrsineæ, native name = *Vayvirang*.—The dried ripe fruit is used. Found in market, very cheap, exported to Europe. The berry should be freshly dried and of red colour, it darkens afterwards. Preparations—powder, a teaspoonful for a child, a dessert spoonful for an adult, with milk. A course of 8 or 10 days suffices. Anthelmintic substitute for Filix Mas and far less severe in action.

Bombay.

30. **Pogostemon parviflorus**,* Labiatæ, native name = *Phangala*.—The root juice is used internally and externally in snake-bite (*Phursa*), but the plant is said to be efficacious in the fresh state only. It would be well to have the supposed use of *phangala* in snake-bite carefully investigated, for although much has already been done in this direction, the question apparently is still undecided. Not commercial, but can readily be collected. Could be cultivated from the seed. An ammoniacal tincture might be useful in snake-bite. (*See Report, p. 40, and App., pp. 243-45.*

Mysore.

31. **Santalum album**, Santalaceæ.—Sandal-wood oil is obtainable in the Bombay market but not always of good quality, but much cheaper than the Mysore product. It would be well to endeavour to obtain the very elegant and genuine oil distilled at Mysore at a reasonably low price for Medical Store purposes.

Bengal.

32. **Peucedanum graveolens**, Umbelliferæ, native name = *Shepu*.—The seed is largely exported to Europe for manufacture of Dill oil. The oil for Government use could be distilled at the Depôts.

33. **Olibanum (Boswellia)**, Burseraceæ—Incense is imported from Africa and is found in the Bombay market at about one anna per lb. It is said that imitation Burgundy pitch can be prepared from this article and that it also can be used as a substitute for Balsams of Tolu and Peru.

Conf. with pp. 116, 126, 149.

Kathiawar.

34. **Jafferabad Aloes**.—Mentioned at page 472, Vol. III., *Pharmacographia Indica*; might be tried as a substitute for Socotrine or Barbados aloes or both. On a few occasions when Socotrine aloes of the required quality was not procurable in the Bombay market, this article was purchased and used at the Medical Store Depôt, Bombay.



* **P. plectranthoides**, *Desf.*; see page 243.—*Hon. Ed.*

INDIGENOUS DRUGS: Bombay. *Conf. with Report, pp. 2, 8, 11; App., pp. 143, 145, 148, 157, 180.* To be procured from Bengal.

35. **Holarrhena antidysenterica**, APOCYNACEÆ.—*Vide Pharmacographia Indica*, Vol. II., page 391, and *Pharmacopœia of India*, pages 137 and 455.

The bark of this tree has a reputation in the treatment of dysentery, also as an antiperiodic, and seems worthy of further investigation. The powdered bark suspended in a strained decoction or infusion of **Plantago ovata** (No. 24 above) is, I am told, very efficacious in dysentery, especially in instances where Ipecacuanha cannot be tolerated.

36. **Gynocardia odorata.**—*Vide Pharmacographia Indica*, Vol. I., page 142, and *Pharmacopœia of India*, page 26. Sikkim. Assam.

Chaulmugra oil has been expressed at the Bombay Medical Store Depôt for many years past and issued for the treatment of leprosy. *Conf. with p. 123.* The seed is purchased at Bombay, but Calcutta* seems to be the proper market. As the seed so obtained is not always of good quality, it would appear desirable to endeavour to establish a constant supply of good fresh seed. The oil appears to deserve a more extended use and to that end hospitals might be asked to experiment with it on a larger scale than at present.

37. The foregoing is merely a rough outline inviting attention to a selection of drugs. Preparations have still to be made and tried in hospital under careful and observant physicians. Comparatively few of the vegetable drugs now required by Bombay are obtained from England. Sulphate of quinine and Cinchona Febrifuge are produced locally, while Cinchonidine Sulphate and Cinchonine Sulphate are imported from England. The desirability of manufacturing the two latter articles in India might be considered.

38. In connection with indigenous drugs I think it would be well to record the name of Mr. M. C. Pereira of Bandra near Bombay, late Assistant in charge of the Bombay Medical Store Depôt Laboratory. Mr. Pereira has been intimately associated with drugs for some forty years in this country and possesses a very extensive practical knowledge of the subject.

* Seed of *Taraktogenos Kurzii* is more commonly sold in Calcutta as Chaulmugra than that of *gynocardia odorata*.—*Hon. Ed.*

APPENDIX XII.

No. 9, dated Calcutta, the 8th May 1896.

Report, p. 21.

From—Brigade-Surgeon-Lieut.-Colonel GEORGE KING, M.B., F.R.S., LL.D., C.I.E., President, Indian Indigenous Drugs Committee,

To—J. P. HEWETT, Esq., C.I.E., Secretary to the Government of India, Home Department, Simla.

The Indigenous Drugs Committee appointed by the Government of India's Resolution No. $\frac{\text{24-Medical}}{\text{793—809}}$, dated the 31st October 1895, desire to lay before the Government of India the appended Resolutions and Recommendations for consideration and orders.

It was resolved at the last meeting of the Committee held on the 28th April that no further meetings should be convened pending the decision of the Government on the present letter, but that a copy of the Proceedings of the meetings already held should be submitted for the information of Government.

Resolutions and Recommendations of the Indigenous Drugs Committee, passed at their meeting of 28th April 1896.

Local Committees. *Conf. with p. 17; App., pp. 142, 164, 166.*

1. That the members of this Committee are of opinion that, in order to carry out satisfactorily the enquiry entrusted to them by the Government of India, it is highly desirable Local Committees should be appointed to act in conjunction with the Central or present Committee. That these Local Committees be appointed for each of the following Provinces, *viz.*, Bombay, Madras, North-West Provinces, Panjab, Central Provinces, Assam and Burma. Further, that the present Committee, while performing the functions of a Central Committee in direct communication with the Government of India, should at the same time act as a Local Committee for the Provinces under the administration of the Government of Bengal.

Period of Investigations.

2. That these Committees be appointed for such time as may be found necessary.

3. That the present Committee, after careful consideration, are of opinion that the evidence in favour of an immediate and extended

substitution, by the Government Depôts, of indigenous drugs for those presently imported from Europe, is of the most unsatisfactory nature.

4. While, therefore, unprepared to recommend the substitution of drugs of which the merit cannot be said to be fully established, in place of those the virtues of which are supported by the most careful and exhaustive chemical, physiological and therapeutic evidence, the Committee are of opinion that the time has come when a selection of the indigenous drugs of India might be submitted to actual therapeutic test. Provisional List *Conf. with Report, pp. 9, 18, 23, 26, 29, 34, 53, 60.*

Resolutions 1 and 2 are therefore submitted with the view of giving practical effect to that opinion.

5. That this Committee are further of opinion that the first matter to be entrusted to the proposed system of Committee should be the careful trial of a certain number of indigenous drugs selected by the Central Committee. Such trials should be simultaneous, so that the results attained in all the centres of experiment may be considered by the Central Committee at one and the same time. But in addition to the drugs suggested by the Central Committee, the Local Committees would be invited to add to their lists other drugs that may be peculiar to their respective provinces. Trial of Drugs. *See p. 29.*

6. That the Director-General of the Indian Medical Department be asked to permit the investigations involved to be undertaken in certain hospitals and dispensaries, to which preparations of the selected indigenous drugs would be issued for trial and report. Selected Hospitals.

7. That the reports obtained from these institutions should pass through, and be commented on by, the Local Commitees before submission to the Central Committee. That the Central Committee should frame its final recommendations as to each drug dealt with on the reports thus received. Preparation of Reports.

8. That the results obtained be published in *The Agricultural Ledger* of the Government of India from time to time and be issued free to all medical men and to others who may be interested in indigenous drugs.

9. The Committee, however, regard the whole enquiry less as a means of saving expenditure than as an agency for discovering what indigenous drugs are really of value. Object in view.

10. The expense entailed by the scheme now outlined need no be very great. The chief items of cost would be the purchase of the crude drugs; the issue of the desired preparations from these; the

conduct of the necessary corespondence connected with the enquiry; and the publication of the result. The Committee would recommend that the Calcutta Depôt should be empowered to issue whatever preparations it may be decided to try to the Local Committees in Bengal, the North-West Provinces, the Panjab, Assam, and Burma; and that the Bombay Dépôt should supply Bombay, Sind, the Central Provinces and Madras. Further, that all the drugs and preparations should be supplied at cost price.

Issue of Preparations.

11. The Committee would also recommend that, in cases where drugs have to be obtained from the Forest and other Departments of the Public Service, the agency under the Reporter on Economic Products should be employed for organising and procuring supplies.

Agency.

Indian Officinal Drugs.

12. The Committee are of opinion that an enquiry, such as that briefly indicated above, might be expected not merely to determine what substitution of indigenous for imported drugs may be desirable, but to lead to the organization of a better system of supply of the indigenous products at present utilized, such, for example, as of Aconite, Kino, Podophyllum, Turpentine, Taraxacum, Gum Arabic, etc.

Type Samples.

13. The Committee would, in conclusion, strongly recommend that each Medical School in India be supplied, through the Central Committee, with typical samples of all the more important indigenous drugs, and that the students of these schools be made to recognize these drugs, and be instructed in their reputed properties, while told of the European drugs for which they may be substituted. In other words, the Committee urge that practical effect may now be given to the recommendations of the *Pharmacopœia of India.*

Ignorance of Indigenous Drugs.

It is believed that the present state of ignorance as to the therapeutic properties of indigenous drugs is due primarily to the fact that little or no attempt has been hitherto made to acquaint the students of our Schools and Colleges with these properties. The Local Committees proposed, and the organised enquiry and research suggested in the foregoing paragraphs, would, it is believed, remove this defect, and would, at the same time, gradually prepare the way for the publication of a revised edition of the *Pharmacopœia of India* while furnishing data on which definite recommendations might be based for an extended substitution of Indigenous for Imported Drugs.

GEORGE KING, *President,*
Indian Indigenous Drugs Committee.

The 8th May 1896.

No. $\frac{\text{18-Medical}}{\text{643—661}}$

Extract from the Proceedings of the Government of India in the Home Department (Medical),—under date Simla, the 31st July 1896.

READ—

Home Department Resolution No. $\frac{\text{24-Medical}}{\text{703—809}}$, dated the 31st October 1895.

RESOLUTION.

PRESIDENT:

Brigade-Surgeon-Lieutenant-Colonel G. King, M.B., F.R.S., C.I.E., Superintendent of the Royal Botanical Garden, Howrah.

MEMBERS:

Surgeon-Lieutenant-Colonel J. F. P. McConnell, M.D., F.R.C.P., Professor of Materia Medica and Clinical Medicine, Medical College, and Second Physician, Medical College Hospital, Calcutta.

Surgeon-Lieutenant-Colonel C. J. Warden, M.D., Medical Store-keeper, Bengal Command.

Dr. G. Watt, C.I.E., Officer in charge of the Economic and Art Section of the Indian Museum

Rai Bahadur Kanny Lall Dey, F.C.S., C.I.E

By the Resolution of the 31st October 1895, cited in the preamble, the Government of India convened at Calcutta, during the last cold season, a Committee, constituted as shown in the margin, to consider the question of extending, in a practical way, the use of indigenous drugs, which had been recommended in a Resolution passed by the Indian Medical Congress held at Calcutta in December 1894. The Committee were specially asked to consider the practicability and utility of—

(a) encouraging the systematic cultivation of medicinal plants indigenous to India;

(b) encouraging the increased use in medical Depôts of drugs of known therapeutic value; and

(c) sanctioning the manufacture of stable preparations of certain drugs at the Depôts.

The Committee were desired to express their opinion as to the action best calculated to afford the encouragement suggested above; and to consider from a practical point of view the question of initiating, as a Government measure, experiments to test the reputed therapeutic value of indigenous drugs.

2. The Governor General in Council has now received a preliminary report from the Committee. The Committee do not find themselves in a position to report definitely on any of the specific questions referred to them, and confine themselves to certain recommendations having for their object the appointment as a preliminary measure of Local Committees, to be armed with certain powers, who would be in

a position to institute inquiries, and report the results to the Central Committee. The text of the resolutions and recommendations made by the Committee is as follows :—

Local Committees. *Conf. with pp. 142, 160.*

(1) That the members of this Committee are of opinion that, in order to carry out satisfactorily the enquiry entrusted to them by the Government of India, it is highly desirable Local Committees should be appointed to act in conjunction with the Central or present Committee. That these Local Committees be appointed for each of the following Provinces, *viz.*, Bombay, Madras, North-West Provinces, Panjab, Central Provinces, Assam, and Burma. Further, that the present Committee, while performing the functions of a Central Committee in direct communication with the Government of India, should at the same time act as a Local Committee for the Provinces under the administration of the Government of Bengal.

Period of Investigations.

(2) That these Committees be appointed for such time as may be found necessary.

Substitution of Indigenous Drugs.

(3) That the present Committee, after careful consideration, are of opinion that the evidence in favour of an immediate and extended substitution, by the Government Depôts, of indigenous drugs for those presently imported from Europe, is of the most unsatisfactory nature.

Provisional List of Drugs. *See Report, pp. 9, 18, 23, 26, 29, 34, 53, 60; App., pp. 161, 179-84.*

(4) While, therefore, unprepared to recommend the substitution of drugs of which the merit cannot be said to be fully established, in place of those the virtues of which are supported by the most careful and exhaustive chemical, physiological and therapeutic evidence, the Committee are of opinion that the time has come when a selection of the indigenous drugs of India might be submitted to actual therapeutic test.

Resolutions 1 and 2 are therefore submitted with the view of giving practical effect to that opinion.

Simultaneous Trials.

(5) That this Committee are further of opinion that the first matter to be entrusted to the proposed system of Committees should be the careful trial of a certain number of indigenous drugs selected by the Central Committee. Such trials should be simultaneous, so that the results attained in all the centres of experiment may be considered by the Central Committee at one and the same time. But, in addition to the drugs suggested by the Central Committee, the Local Committees would be invited to add to their lists other drugs that may be peculiar to their respective provinces.

Selected Hospitals. *Conf. with Report, pp. 2, 43, 52; App., pp. 169, 212, 224, 255, 268, 297, 355.*

(6) That the Director-General of the Indian Medical Department be asked to permit the investigations involved to be undertaken in certain hospitals and dispensaries, to which preparations of the selected indigenous drugs would be issued for trial and report.

(7) That the reports obtained from these institutions should pass through, and be commented on by, the Local Committees before submission to the Central Committee.

Final Reports

That the Central Committee should frame its final recommendations as to each drug dealt with on the reports thus received.

TO PARA. 45 OF THE REPORT.

RESOLUTION of G. of I.

Publication of Information.

(8) That the results obtained be published in *The Agricultural Ledger* of the Government of India from time to time and be issued free to all medical men and to others who may be interested in indigenous drugs.

(9) The Committee, however, regard the whole enquiry less as a means of saving expenditure than as an agency for discovering what indigenous drugs are really of value.

Expenditure Incurred.

(10) The expense entailed by the scheme now outlined need not be very great. The chief items of cost would be the purchase of the crude drugs; the issue of the desired preparations from these; the conduct of the necessary correspondence connected with the enquiry and the publication of the result. The Committee would recommend that the Calcutta Depôt should be empowered to issue whatever preparations it may be decided to try to the Local Committees in Bengal, the North-West Provinces, the Panjab, Assam, and Burma; and that the Bombay Depôt should supply Bombay, Sind, the Central Provinces, and Madras. Further, that all the drugs and preparations should be supplied at cost price.

Agency.

(11) The Committee would also recommend that, in cases where drugs have to be obtained from the Forest and other Departments of the Public Service, the agency under the Reporter on Economic Products should be employed for organising and procuring supplies.

Supply of Official Drugs.

(12) The Committee are of opinion that an enquiry, such as that briefly indicated above, might be expected, not merely to determine what substitution of indigenous for imported drugs may be desirable but to lead to the organisation of a better system of supply of the indigenous products at present utilised, such, for example, as of Aconite, Kino, Podophyllum, Turpentine, Taraxacum, Gum Arabic, etc.

Issue of Standards to Colleges.

(13) The Committee would, in conclusion, strongly recommend that each Medical School in India be supplied, through the Central Committee, with typical samples of all the more important indigenous drugs, and that the students of these schools be made to recognise these drugs, and be instructed in their reputed properties, while told of the European drugs for which they may be substituted. In other words, the Committee urge that practical effect may now be given to the recommendations of the *Pharmacopœia of India.*

Edition of the Pharmacopœia.

It is believed that the present state of ignorance as to the therapeutic properties of indigenous drugs is due primarily to the fact that little or no attempt has been hitherto made to acquaint the students of our Schools and Colleges with these properties. The Local Committees proposed and the organised enquiry and research suggested in the foregoing paragraphs, would, it is believed, remove this defect and would at the same time gradually prepare the way for the publication of a revised edition of the *Pharmacopœia of India*, while furnishing data on which definite recommendations might be based for an extended substitution of Indigenous for Imported Drugs.

RESOLUTION of G. of I.

APPENDIX XII.

Local Committees. *Conf with Report, p. 17; App., pp. 142, 150, 164, 171-77, 203-04, 283-288, 301-02, 55.*

3. The Governor General in Council agrees that the inquiry entrusted to the Committee appointed under the resolution of the 31st October 1895 shall be further prosecuted in the manner suggested by them. Local Governments and Administrations are accordingly requested to assist in the carrying out of the scheme sketched by the Committee by appointing Local Committees as proposed. It has been suggested to the Government of India that the following officers would make useful members of the different Local Committees, but the actual constitution of the Committee is left to be settled by the Local Governments :—

Madras. *Conf. with pp. 171, 355.*

Madras.—The Principal and the Professor of Materia Medica at the Medical College; the Medical Storekeeper to Government; Mr. D. Hooper, Quinologist to Government.

Bombay. *Conf. with p. 169.*

Bombay.—The Principal and the Professor of Materia Medica at the Medical College; the Medical Storekeeper, Bombay Command.

N.-W. P. *Conf. with p. 171.*

North-West Provinces and Oudh.—The Principal and the Teacher of Materia Medica at the Medical College, Agra. Corresponding Members might usefully be appointed to this Committee and the names of Dr. Hendley, Administrative Medical Officer of Rajputana, and the Civil Surgeons of Lucknow and Benares, who are believed to have special opportunities of consulting *Hakims* and *Baids*, suggest themselves to the Government of India.

Panjab. *Conf. with p. 171.*

Panjab.—The Principal, the Professor and the Teacher of Materia Medica at the Medical College, Lahore; the Medical Storekeeper to Government, Panjab Command. The Civil Surgeons of Peshawar, Delhi, Dharmsala and Gurdaspur have special opportunities of acquiring information regarding the use of indigenous drugs and would make useful corresponding Members of the Local Committee.

Burma. *Conf with p. 173*

Burma.—The Senior Civil Surgeon and the Medical Storekeeper, Rangoon.

The Government of India would be glad if Local Committees could, should Local Governments and Administrations concerned see no objection to this course, be instructed to correspond direct with the Central Committee.

4. It has been decided that, as requested by the Committee, all drugs and preparations should be supplied cost free to the Local Committees, the charge being borne by the Government of India, under whose orders the inquiry is being conducted, and that the requests contained in the eighth and tenth resolutions shall be complied with. Any drugs recommended for trial by Local Committees or individuals will be reported by the former to the Medical Storekeeper, who will purchase them and prepare them in a form suitable

RESOLUTION of G. of I.

for administration. The Government of India trust that Local Governments and Administrations will afford every facility to the Local Committees in their investigations. The Government of India propose that the Director-General, Indian Medical Service, should arrange, with the local Inspector-General of Hospitals, for the investigations to be undertaken in selected hospitals and dispensaries, to which preparations of indigenous drugs are to be issued for trial and report.

ORDER.—Ordered, that a copy of this Resolution be forwarded to Local Governments and Administrations, the several members of the Indigenous Drugs Committee, and to the Director-General, Indian Medical Service, for information and guidance.

Ordered also, that a copy be forwarded to the Departments of Finance and Commerce and Revenue and Agriculture, for information.

[True Extract.]

L. M. THORNTON,

Deputy Secretary to the Government of India.

APPENDIX XIII. A.

Communications on Local Committees—Appointments.

Conf. with Appendices XIII D, XVI, XXI.

Dated Calcutta, the 2nd September 1896.

From—C. J. H. WARDEN., Esq., M.D., Honorary Secretary, Indian Indigenous Drugs Committee,

To—The Secretary to the Government of India, Home Department, Simla.

I am directed by the President of the Central Indigenous Drugs Committee to inform you that the death of Surgeon-Lieutenant-Colonel McConnell has occasioned a vacancy in the Committee, and I am to request the favour of your moving the Government of India to appoint a successor to the deceased member.

Death of Dr. McConnell.

No. 814, dated Simla, the 23rd September 1896.

From—C. H. A. HILL, Esq., Under-Secretary to the Government of India, Home Department,

To—The Honorary Secretary, Indian Indigenous Drugs Committee.

In reply to your letter No. 10, dated the 11th September 1896, I am directed to state, for the information of the President of the Central Indigenous Drugs Committee, that the Government of India has been pleased to appoint Surgeon-Lieutenant-Colonel E. G.

Appointment of Dr. Russell.

APPENDIX XIII. B.

Russell, M.B., Professor of Materia Medica and Clinical Medicine in the Calcutta Medical College, and *ex officio* Second Physician in the College Hospital, to be a member of the Committee in the place of Surgeon-Lieutenant-Colonel J. F. P. McConnell, M.D., deceased.

Dr. Russell's Appointment.

From—The Honorary Secretary, Indian Indigenous Drugs Committee,

To—Surgeon-Lieut.-Col. E. G. RUSSELL, M.B., Professor of Materia Medica and Clinical Medicine in the Medical College, Calcutta.

I am directed to forward you a copy of letter No. 814, dated the 23rd September 1896, from Secretary to the Government of India, appointing you a member of the Indigenous Drugs Committee in the place of Surgeon-Lieutenant-Colonel McConnell, deceased.

Secretaries of Local Committees. Conf. with p. 23.

APPENDIX XIII. B.

Hon. Secretaries of Provincial Committees.

Letter No. 11, dated the 2nd September 1896, from the Honorary Secretary, Central Committee, addressed to marginally noted Local Governments.

Copy to Chief Secy.,			Government,	Madras.
"	"	"	"	Bombay.
"	"	"	"	N. W. P. & Oudh.
"	"	"	"	Punjab.
"	"	"	"	Burma.
"	"	"	"	Assam.
"	"	"	"	C. Provinces.

With reference to the Resolution of the Government of India, in the Home Department, No. $\frac{8\text{ Medical}}{643\text{-}661}$, dated the 31st July 1896, directing the formation of the Sub-Committees in connection with the Indigenous Drugs Committee appointed by the Government of India, Home Department, Resolution No. $\frac{24\text{ Medical}}{793\text{-}809}$, dated the 31st October 1895, I have the honour to request the favour of your informing me at an early date of the name of the officer selected to act as Honorary Secretary to the Sub Committee of your Province.

APPENDIX XIII. C.

Bombay Committee. Report, pp. 2, 13.

Hospitals Selected for Clinical Investigations.

No. 4475, dated Bombay Castle, the 19th October 1896.

From—The Secretary to the Government of Bombay, General Department,

To—The Honorary Secretary, Indian Central Indigenous Drugs Committee, No. 8, Wellesley Place, Calcutta.

With reference to your letter No. 11, dated the 2nd ultimo, regarding the formation of Sub-Committees in connection with the

Indigenous Drugs Committee appointed by the Government of India, Home Department, Resolution No. $\frac{24\text{-Medical}}{793-809}$, dated the 31st October 1895, I am directed to forward herewith, for your information, copy of a letter from the Medical Storekeeper to Government, Bombay Command, No. $\frac{G}{5553}$, dated the 1st ultimo, and to state that His Excellency the Governor in Council approves of the arrangements proposed by that officer, and has directed the Surgeon-General with this Government to issue instructions to give effect to them. The Bombay Local Committee will correspond direct with the Central Committee.

Letter No. $\frac{G}{5553}$, dated the 1st August 1896, from the Medical Storekeeper to Government, Bombay Command :—

"In returning the two papers marginally noted, received under your endorsement No. 6618 of 26th ultimo, I have the honour to submit the following report. Kindly endeavour to obtain a copy of the printed matter accompanying for record in this office and for the information of the Local Committee.

1. Government of India Resolution No. 18-Medical 649-661 of 31st July 1896, Home Department (Medical).
2. Bombay Government endorsement No. 3692 of 20th August 1896, General Department.

"2. The initial points to be determined are :—

(a) the composition of the Bombay Local Committee,

(b) the selection of the hospitals at which the preparations of indigenous drugs are to be tried.

"3. I would suggest that the Bombay Local Committee be formed as per margin; that the meetings take place at the office of the Medical Storekeeper, and that these meetings be convened by the President from time to time as occasions arise. Surgeon-Captain Childe has already afforded very valuable clinical assistance in this direction in communication with this Department, and as a very careful observant physician is particularly suited to an enquiry of this nature. Surgeon-Captain Hojel, as Professor of Materia Medica and Resident Surgeon at a large Bombay hospital, is also peculiarly adapted to such an enquiry.

Local Committee.

Surgeon-Lieutenant-Colonel Parker, Medical Storekeeper, Bombay Command, *President*.

Surgeon-Captain Childe, Second Physician, Sir Jamshetji Jijibhai Hospital. Surgeon-Captain Hojel, Resident Surgeon, St. George's Hospital, and Professor of Materia Medica. *Members*.

APPENDIX XIII. C.

"4. I would suggest that the preparations be tried at the following hospitals, most of which are associated with medical schools:—

St. George's Hospital, Bombay;
Sir Jamshetji Jijibhai Hospital, Bombay;
Civil Hospital, Poona;
Do. do., Ahmedabad;
Do. do., Hyderabad (Sind).

"I think it would be well to confine the trial to the larger institutions affording full facilities for such a purpose, and I think that reports on the subject from Hospital Assistants in charge of dispensaries are unnecessary in the present stage of the inquiry.

"5. On the appointment of our Local Committee and trial hospitals, the President of the former can, as proposed by the Government of India in the third paragraph of the printed accompaniment in direct communication with the Central Committee at Calcutta, obtain a supply of the selected indigeous drugs. These drugs will be at once worked up into suitable preparations and distributed to the trial hospitals.

"6. I would suggest that the officers in charge of trial hospitals be invited to fully comment on the therapeutic value of the articles investigated when forwarding their reports to the President of the Local Committee, and if any of the selected indigenous drugs are found after careful and sufficient clinical observation to be practically inert, I hope the officers will not hesitate to say so, whatever may be the reputed result of former experience.

Standard Samples. *Conf. with pp. 31, 52, 56, 77, 96-97, 308-12*

"7. Hereafter as the results of this investigation are published in *The Agricultural Ledger* and circulated to all concerned, samples of the drugs can be obtained by the various medical schools for communication to students as additions to Materia Medica.

"8. The necessary arrangements will be made in connection with the Central Provinces and Madras."

Hospitals from Madras and C. P. *Report, p. 43.*

No. $\frac{G.}{8464}$, dated Bombay, the 25th November 1889.

From—SURGEON-LIEUT.-COL. J. PARKER, M.D., Medical Storekeeper to Government, Bombay Command, and President, Local Indigenous Drugs Committee,

To—The President, Central Indigenous Drugs Committee, c/o The Medical Storekeeper to Government, Bengal Command, Calcutta.

I have the honour to inform you that 18 trial hospitals have been selected for the Madras Central Provinces and Bombay Section in

connection with the indigenous drugs inquiry, and to suggest that the selected drugs be forwarded to Bombay in quantities sufficient to work up preparations here for that number of institutions.

Subsequent communications. *Conf. with App., pp. 203-204; 280-88; 355.*

APPENDIX XIII. D.

Communications on Local Committees.

No. 171, dated Madras Medical College, the 15th September 1896.

From—SURGEON-LIEUT.-COL. W. R. BROWNE, M.D., Principal, Medical College, and President, Indian Indigenous Drugs Sub-Committee, Madras,

To—The Honorary Secretary, Indian Indigenous Drugs Committee, No. 8, Wellesley Place, Calcutta.

Hon. Sec. to Madras Local Committee.

With reference to your letter No. 11, dated the 2nd September 1896, to the Chief Secretary to Government, Madras, I have the honour to inform you that the Professor of Materia Medica, Medical College, Madras, has been appointed Honorary Secretary to the Madras Sub-Committee on Indian Indigenous Drugs.

No. $\frac{297}{V.-237 B.}$, dated Naini Tal, the 13th October 1896.

From—The Secretary to the Government of the North-Western Provinces and Oudh,

To—The Honorary Secretary, Indian Indigenous Drugs Committee, No. 8, Wellesley Place, Calcutta.

Hon. Sec. to N.-W. P. and Oudh Local Committee.

Medical Department.

In reply to your letter No. 11, dated the 2nd September last, I am directed to inform you that Assistant Surgeon Masha Alla Khan, Lecturer on Materia Medica, Agra Medical School, is the Honorary Secretary to the Sub-Committee appointed in these Provinces for the investigation into the uses of indigenous drugs.

No. 3200, dated the 26th October 1896.

From—The Inspector-General of Civil Hospitals, Panjab,

To—The Junior Secretary to the Government of the Panjab.

Hon. Sec. to Panjab Local Committee. *See also pp. 203-04.*

With reference to paragraph 3 of your letter No. 477, dated 8th October 1896, I have the honour to state that I have nominated the Professor of Materia Medica, Lahore Medical College (Surgeon-Captain J. Murray) to act as Honorary Secretary to the Panjab Sub-Committee of the Indigenous Drugs Committee.

LOCAL COMMITTEES.

APPENDIX XIII. D.

No. 504, dated Lahore, the 30th October 1896.

Endorsed by the Government of the Panjab.

Copy of the above forwarded to the Honorary Secretary, Indian Indigenous Drugs Committee, for information, with reference to his letter No. 11, dated the 2nd of September 1896.

No. 6754, dated Nagpur, the 5th October 1896.

From—C. E. B. CRITCHLEY, Esq., Assistant Secretary to the Chief Commissioner, Central Provinces,

To—The Honorary Secretary, Indian Indigenous Drugs Committee, No. 8, Wellesley Place, Calcutta.

C. P. Local Committee and Hon. Sec.

With reference to your letter No. 11, dated the 2nd ultimo, I am directed to inform you that the Sub-Committee in the Central Provinces in connection with the Indigenous Drugs Committee has been constituted as follows:—

Surgeon-Lieutenant-Colonel H. K. McKay, Civil Surgeon, Jubbulpore.

Surgeon-Major G. F. A. Harris, Civil Surgeon, Nagpur.

Surgeon-Major H. E. Banatvala, Civil Surgeon, Betul.

Dr. Banatvala will act as Honorary Secretary to the Sub-Committee.

No. $\frac{309 \text{ M. \& S.}}{6232\text{-G.}}$, dated Shillong, the 19th September 1896.

From—E. A. GAIT, Esq., Officiating Secretary to the Chief Commissioner of Assam,

To—The Honorary Secretary, Indian Indigenous Drugs Committee, No. 8, Wellesley Place, Calcutta.

Assam Hon. Sec.

I am directed to acknowledge the receipt of your letter No. 11, dated the 2nd September 1896, in which you ask to be informed of the name of the officer nominated to act as Honorary Secretary to the Sub-Committee appointed in this Province in connection with the proposals for the extension of the use of Indigenous Drugs.

2. In reply I am to say that, pending the return in November next of the Principal Medical Officer and Sanitary Commissioner, Assam, who is now on leave, the Civil Surgeon of Shillong, Surgeon-Captain E. R. W. C. Carroll, who is officiating as Sanitary Commissioner, has undertaken to act as Honorary Secretary to the Assam Sub-Committee, and that the Chief Commissioner has agreed to his doing so.

TO PARAS. 51, 58, 74 OF THE REPORT. LOCAL COMMITTEES.

No. 946—5x-26, dated Rangoon, the 30th October 1896.

From—The Secretary to the Chief Commissioner of Burma,
To—The Honorary Secretary, Indian Indigenous Drugs Committee, No. 8, Wellesley Place, Calcutta.

Hon. Sec. to Burma Local Committee.

In reply to your letter No. 11, dated the 2nd September 1896, I am directed to say that Surgeon-Captain C. Duer, Resident Medical Officer, General Hospital, Rangoon, has been appointed to be Honorary Secretary to the Sub-Committee of this Province.

No. $\frac{406 \text{ M. \& S.}}{8379\text{-G.}}$, dated Shillong, the 28th December 1896.

From—The Officiating Secretary to the Chief Commissioner of Assam,
To—The Honorary Secretary, Indian Indigenous Drugs Committee, No. 8, Wellesley Place, Calcutta.

Assam Local Committee and Hon. Sec.

With reference to the Resolution of the Government of India in the Home Department, No. $\frac{8\text{-Medical}}{643-661}$, dated the 31st July 1896, and in continuation of this office letter No. $\frac{309 \text{ M. \& S.}}{6232\text{-G.}}$, dated the 19th September last, I am directed to say that the marginally noted officers have been selected to form the Local Committee for this Province in connection with the proposals for the extension of the use of indigenous medical drugs. The Committee, which will have its head-quarters at Shillong, has been instructed to correspond direct with the Central Committee.

Principal Medical Officer and Sanitary Commissioner, Assam *President.*
Medical Officer of the Regiment stationed at Shillong . . *Member.*
Civil Surgeon of Shillong . . *Member and Honorary Secretary.*

No. 17, dated Calcutta, the 30th December 1896.

From—Brigade-Surgeon-Lieut.-Col. GEORGE KING, M.B., F.R.S., LL.D., C.I.E., President, Indian Indigenous Drugs Committee,
To—J. P. HEWETT, Esq, C.I.E., Secretary to the Government of India, Home Department.

Bengal Committee necessary.

I am directed by the Central Committee on Indigenous Drugs to invite the Government of India to address the Government of

Bengal on the desirability of a Provincial Committee being formed for that Province. I would point out that in the Statement of Resolutions and Recommendations that accompanied my letter No. 9, dated the 8th May, paragraph one proposed that the Central Committee should be empowered to act also as the Bengal Provincial Committee. The Government of India were pleased to accept these recommendations, and, by their Resolution No. $\frac{18\text{-Medical}}{643-661}$, dated the 31st July 1896, issued them for the consideration of Local Governments and Administrations. It does not appear, however, that the Government of Bengal were addressed on the subject and, accordingly, replies have been received from Bombay, Madras, the North-West Provinces, the Panjab, the Central Provinces, Assam, and Burma, but not from Bengal. It would accordingly appear necessary that the suggestion of this Committee being entrusted with the Bengal investigations should receive the authority of the Local Government.

Necessity for Bengal Committee.

2. The Central Committee at their meeting of the 9th instant felt, however, that it would be of the very greatest advantage to receive the co-operation of a separate Provincial Committee. They would, therefore, desire permission to modify that part of their recommendations. I am in consequence desired to lay this matter before the Government of India for favourable consideration, and, if approved of, to ask that a Committee be appointed for Bengal similar to the Committees in all other Provinces.

No. 27, dated Calcutta, the 11th January 1897.

From—R. NATHAN, Esq., Officiating Under-Secretary to the Government of India, Home Department,

To—The President, Indian Indigenous Drugs Committee.

I am directed to acknowledge the receipt of your letter No. 17, dated the 30th December 1896, in which it is stated that the Central Committee desire that a Local Committee should be appointed for Bengal, similar to the Committees appointed in other Provinces. In reply I am to forward, for your information, a copy of a letter No. 28 of this date, requesting the Government of Bengal to appoint a Local Committee for that Province.

With reference to the remarks in the first paragraph of your letter, I am to say that a copy of the Resolution in this Department, No. 18-Medical—643-661, dated the 31st July 1896, in which the Resolutions and Recommendations of the Indigenous Drugs Committee, passed at their meeting of the 24th April 1896, were reproduced with an

expression of the approval of the Government of India, was forwarded to the Government of Bengal as well as to other Local Governments and Administrations.

No. 28, dated Calcutta, the 11th January 1897.

From—R. NATHAN, Esq., Officiating Under-Secretary to the Government of India, Home Department,

To—The Secretary to the Government of Bengal, Municipal Department.

In continuation of Home Department Resolution No. 18-Medical —643-661, dated the 31st July 1896, I am directed to forward a copy of a letter No. 17, dated the 30th December 1896, from the President, Indian Indigenous Drugs Committee, and to request that, with the permission of His Honour the Lieutenant-Governor, a separate Local Committee for Bengal may be appointed to assist the Central Committee in their investigations. Bengal.

2. I am also to request that the officers of the Local Committee may be nominated under the orders of His Honour the Lieutenant-Governor.

Resolution by the Government of Bengal in the Municipal Department— No. 935 Medical, dated Calcutta, the 19th February 1897.

READ—

A letter from the Government of India, Home Department, No. 28, dated the 11th January 1897, forwarding, for information, a copy of a letter from the President, Indian Indigenous Drugs Committee, and requesting that a separate Local Committee for Bengal may be appointed to assist the Central Committee in their investigations.

READ also—

A letter from the Inspector-General of Civil Hospitals, Bengal, No. 729, dated the 29th January 1897, nominating, in accordance with the request of this Government, certain Medical Officers to form the Local Committee.

In accordance with the wishes of the Government of India, the Lieutenant-Governor is pleased, on the recommendation of the Inspector-General of Civil Hospitals, to appoint the following Medical Officers to form a separate Committee for Bengal, to assist the Indian Indigenous Drugs Committee constituted under the Resolution of

the Government of India, Home Department, No. 24 Med., 793—809, dated the 31st October 1895, in their investigations :—

Bengal Local Committee and Hon. Sec.

Surgeon-Lieutenant-Colonel G. Bomford M.D., Principal, Medical College, and *ex-officio* First Physician, Medical College Hospital, Calcutta .	*President.*
* Surgeon-Lieutenant-Colonel C. J. H. Warden, Medical Storekeeper to Government, Bengal Command, Calcutta	*Members.*
Surgeon-Captain R. Bird, M.D., Resident Surgeon, Medical College Hospital, Calcutta .	

By order of the Lieutenant-Governor of Bengal,

H. H. RISLEY,

Secretary to the Government of Bengal.

No. 938-Medical.

Copy submitted to the Government of India, Home Department for information and for favour of communication to the President, Indian Indigenous Drugs Committee, and to Surgeon-Lieutenant-Colonel C. J. H. Warden.

By order of the Lieutenant-Governor of Bengal,

B. FOLEY,

Under Secretary to the Government of Bengal.

No. 172, dated Calcutta, the 11th March 1897.

Endorsed by the Home Department.

Copy forwarded to the President, Indian Indigenous Drugs Committee, for information, in continuation of the letter from this Department, No, 27, dated the 11th January 1897.

No. 68, dated the 8th April 1897.

From—Surgeon-Lieut.-Col. C. J. H. WARDEN, M.D., Medical Storekeeper to Government, Bengal Command, Calcutta,

To—The Secretary to the Director-General, Indian Medical Service, Simla.

With reference to your endorsement No. 1800, dated the 26th March 1897, forwarding copies of correspondence regarding my appointment as a member of the Bengal Local Indigenous Drugs Committee, I have the honour to point out that, when the Inspector-General of Civil Hospitals, Bengal, nominated me to serve on the Bengal Com-

* Surgeon-Captain J. F. Evans appointed in place of Surgeon-Lieutenant-Colonel C. J. H. Warden—*see* letter on page 199.

mittee, he must have been unaware that I was already a member of the Central Committee.

Necessity for Clinical Investigation.

On the Central Committee there is only one member, the Professor of Materia Medica, Medical College, Calcutta, who has really any direct connection with the profession of medicine, and the object aimed at in the formation of Local Sub-Committees, was, that an opportunity might be afforded for clinical investigation being carried out on selected indigenous drugs, by officers employed in the actual treatment of the sick. For me to serve, therefore, on the Local Committee, I venture to state, is quite useless; and it would be better to nominate another officer in my place. It appears to me very desirable that the assistance of officers connected specially with native medical schools should be enlisted, and this can only be effectually accomplished by giving them a direct interest in the work by appointing them members of the Local Committee. Further, it is quite unnecessary that all the members of the Local Committee should actually reside in one station, as will be seen from a reference to the constitution of Local Committees nominated in other Provinces.

No. 22, dated the 21st April 1897.

From—G. Watt, Esq., M.B., C.M., C.I.E., Secretary, Central Indigenous Drugs Committee,

To—The Secretary to the Director-General, Indian Medical Service.

Lieutenant-Colonel Warden.

I am directed to submit, for your information and such action as you may deem necessary, a letter to your address (passed through this office) from Surgeon-Lieutenant-Colonel C. J. H. Warden, M.D. I am to add that the President and Members of the Central Committee concur with Dr. Warden in the view he advocates, namely, that the members of the Bengal Local Committee should, as far as possible, consist of gentlemen who are in a position to carry out direct clinical investigations, and who at the same time are not members of the Central Committee.

I take this opportunity to add that, with the view of saving time copy of this letter and its enclosure has been sent (under endorsement) to H. H. Risley, Esq., I.C.S., Secretary to the Government of Bengal, pending communication from the Director-General, Indian Medical Service.

Endorsement.—Copy forwarded to H. H. Risley, Esq., I.C.S., Secretary to the Government of Bengal (with special reference to endorsement No. 938 (Medl.) of the 19th February) pending communication from Director-General, Indian Medical Service.

PROVISIONAL LIST.

APPENDIX XIV.

Introductory Note on the Provisional List of Indigenous Drugs.

The following list of indigenous vegetable drugs has been compiled from the classified catalogue, pages 401 to 430 of the Pharmacopœia of India (edited by Waring), and from the special opinions and suggestions furnished by various officers in connection with the present enquiry. (*See App., pp. 116-27; 130-33; 134-40; 145-47; 148-49; and 152-59.*) In the Indian Pharmacopœia classification, one drug often appears under several heads, thus Calotropis gigantea is included in the list of *Alterative tonics, Diaphoretics,* and *Emetics;* in the present compilation repetition of the name of a drug according to its alleged multiple therapeutic actions is avoided. An endeavour has been made to select indigenous drugs which are reputed to be equivalent in therapeutic action to drugs official in the British Pharmacopœia and also as far as possible to select those of very general occurrence in the drug shops of India. But in this connection it must be clearly recognized that much of the alleged specific therapeutic action of indigenous drugs is based on data practically of little worth. A very large number of indigenous drugs have not as yet been thoroughly investigated chemically: and, as a rule, no information is available regarding the physiological action of the principles which are presumably present in those which do possess active properties. Clinical investigations ought preferably to *follow* a knowledge of the chemical composition and physiological action of any particular drug. Unfortunately in most cases the procedure we are forced to adopt will be the opposite, and under such circumstances it is very desirable to lay stress on the importance of not drawing hasty conclusions from the supposed therapeutic results observed from the administration of indigenous drugs. In the clinical experiments to be undertaken the rule ought to be to avoid, if possible, admixture of other therapeutically active drugs when it is wished to test the effects of an indigenous drug of unknown composition: and to have control cases of similar types under treatment with official drugs. In this way it may be possible to arrive at some conclusion as to the value of the indigenous equivalents or substitutes.

Alleged Therapeutic Actions.

Hasty Conclusions.

[The list of drugs on pages 179-84 was, according to the Resolution under para. 103, amended and corrected up to date of February 1900.—*Hon. Sec.*]

TO PARAS. 42, 48, 54, 57, 88 AND 103 OF THE REPORT.

AMENDED PROVISIONAL LIST.

CLASSIFIED LIST OF INDIGENOUS DRUGS.

(Revised and Amended up to February 1900 in accordance with Resolutions, paras. 89 and 103 of the Report.)

Tonics (Form No. I.).	*Remarks.*
(Report, p. 14.)	Preparations it is proposed to use, etc.
1. **Soymida febrifuga.** *(Conf. with Report, pp. 12, 63; and App., p. 146.)*	(1. *a*) Liqd. Ext. of the bark 1. in 1. Menstruum alcohol 60%.
2. **Tinospora cordifolia.** *(Conf. with p. 63 and App., p. 156.)*	(2. *a*) Liqd. Ext. of the whole plant 1. in 1. Menstruum alcohol 60%.
3. **Picrasma quassioides.** *(Conf. with p. 62.)*	(3. *a*) Liqd. Ext. of the wood 1. in 1. Menstruum alcohol 60%. (*b*) Extract same as Ext. Quassia B. P.
4. **Gentiana Kurroo.** *(Conf. with Report, pp. 12, 64.)*	(4. *a*) Liqd. Ext. 1. in 1. Menstruum alcohol 60%. (*b*) Extract, same as Ext. Gent. B. P.
5. **Nerium odorum.** *(Conf. with p. 62.)*	(5 *a*) Liqd. Ext. of the dried bark 1. in 1. Menstruum alcohol 60%.
6 **Strophanthus sp.? S. Wallichii.***	(6 *a*) An infusion of the leaves.
7. **Corchorus olitorius.†** *(Report, pp. 28 and 61.)*	

Alteratives and Alterative Tonics (Form No. II.).	
1. **Calotropis gigantea. C. procera.** *(Conf. with Report, pp. 8, 9, 11, 37, 46, 51, 55, 61, 72; and App., pp. 146, 148, 202, 211, 228, 251, 262-72, 293-96, 350-85, 435-54.)*	(1. *a*) Liqd. Ext. of the root bark 1. in 1. Menstruum alcohol 90%. (*b*) Powder.
2. **Hydrocotyle asiatica.** *(Conf. with Report, pp. 11, 14, 62; and App., p. 146.)*	(2. *a*) Liqd. Ext. of the dried plant 1. in 1. Menstruum alcohol 90%.

* To be enquired into in Burma.

† Bengal Sub-Committee to investigate this product.

AMENDED PROVISIONAL LIST.

APPENDIX XIV.

Anthelmintics (Form No. III.).	*Remarks.*
1. Embelia Ribes. E. robusta. (*Conf. with p. 58; and App., p. 158.*)	(1. *a*) Ammonium salt of embelic acid. (*b*) Powder of the berries.
2. Butea frondosa. (*Conf. with pp. 45, 65: App., pp. 120, 127, 282.*)	(2. *a*) Powdered seeds—to be experimented with in Madras (*see Report, p. 45*).

Antiperiodics and Febrifuges—Conf. with paras. 26, 31 and 34 of the Report (Form No. IV.).	
1. Alstonia scholaris. (*Conf. with Report, pp. 30, 44, 47, 51, 61; App., pp. 143, 202, 211, 229, 251, 259-61, 357, 369, 415-38.*)	(1. *a*) Liqd. Ext. of the dried bark 1. in 1. Menstruum alcohol 60%. (*b*) Fluid extract, made in the same way and of the same strength as the Ext. Cinch. liq. B. P. (*c*) The alkaloid.
2. Melia Azadirachta. (*Conf. with Report, p. 12; and App., pp. 146 and 157.*)	(2. *a*) Liqd. Ext. of the dried bark 1 in. 1. Menstruum alcohol 90%.
3. Holarrhena antidysenterica. (*Conf. with Report, pp. 2, 8, 11, 72; and App., pp. 143, 145, 148, 157, and 159.*)	(3. *a*) Liqd. Ext. of the stem or root-bark 1. in 1. Menstruum alcohol 60%. (*b*) The alkaloid. (*c*) Fluid extract, made in the same way and of the same strength as Ext. Cinch. liq. B. P. (*d*) Powder of the seeds.
4. Narcotine. (*Conf. with Report, pp. 6, 12, 14 and 56; and App., pp. 124, 132, 135, 147, 306-07.*)	
5. Andrographis paniculata. (*Conf. with Report, pp. 14, 58; and App., pp. 148 and 157.*)	(5. *a*) Liqd. Ext. 1. in 1. Menstruum alcohol 60%.
6. Berberis Lycium. B. aristata. (*Conf. with Report, pp. 11, 13 and 61; also App., pp. 145, 149.*)	(6. *a*) Liqd. Ext. 1. in 1. Menstruum alcohol 60%.

***Antiperiodics and Febrifuges—Conf. with paras. 26, 31 and 34, of the Report (Form No. IV.)—* contd.**	***Remarks.***
7. **Cæsalpinia Bonducella.** (*Conf. with Report, pp. 11, 12, 13, 58; and App., p. 146.*)	(7. *a*) Compound powder of seed as in Indian Pharm., page 69.
8. **Picrorhiza Kurrooa.** (*Report, pp. 12, 30, 37, 47, 50; App., pp. 155, 211, 228, 251-58, 357, 361, 375, 459-74.*)	(8. *a*) Liqd. Ext. of the rhizome 1. in 1. Menstruum alcohol 60%.

Not to be tried until physiological experiments have been performed.

9. **Thevetia neriifolia.** (*Report, pp. 26, 27; App., p. 246.*)	(9. *a*) Liqd. Ext. of the dried bark 1. in 1. Menstruum alcohol 90%. (*b*) Ditto of kernel.

Antispasmodics (Form No. V.).

1. **Carum Copticum.** (*Conf. with Report, p. 61; App., pp. 119 and 125.*)	Ajowan oil.

Astringents (Form No. VI.).

1. **Acacia Catechu** (black catechu). (*Conf. with p. 58, 94, and App., pp. 119, 340.*)	(1. *a*) Liqd. Ext. 1. in 1. Menstruum alcohol 60%.
2. **Cedrela Toona.** (*Conf. with p. 61.*)	(2. *a*) The juice from fresh leaves and stems. (*b*) Liqd. Ext. of dried leaves and stems 1. in 1. (*c*) An extract from dried leaves and stems.
3. **Blumea lacera.*** (*Conf. with Report, pp. 14, 27, 29-30; App., p. 148.*)	(3. *a*) The leaves.
4. **Symplocos racemosa.**† (*Conf. with p. 54.*)	(4.) Liqd. Ext. from bark 1. in 1.

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* The drug alluded to in paragraph 35 of the Report and on page 148 of the Appendix, as met with in the Calcutta shops, has been identified as **Eupatorium Ayapana.** The hæmostatic from Bombay, shown at the Calcutta Medical Conference, was **Blumea lacera**—Hon. Sec.

† To be dealt with by the Bengal Committee.

AMENDED PROVISIONAL LIST.

Astringents (Form No. VI.)—contd.	*Remarks.*
5. **Ægle Marmelos** (specific in dysentery). (*Conf. with Report, pp. 8, 11, 17, 27, 61, 71 ; App., pp. 117, 130, 137-40, 145, 309.*)	(5.) Fluid extract from fresh pulp of ripe fruit.
Demulcents (Form No. VII.).	
1. **Plantago ovata.** (*Conf. with Report, pp. 11, 12, 62 ; and App., pp. 145 and 157.*)	1. The seeds.
2. **Ocimum Basilicum.** (*Conf. with Report, pp. 12, 27, 62.*)	2. The seeds.
3. **Corchorus fascicularis.*** (*Conf, with Report, pp. 35, 61, 81 ; and App., p. 208.*)	3. Dried powder, also an infusion.
Diuretics (Form No. VIII.).	Already in use at Medical Depôts.
Scilla indica. (= Ledebouria hyacinthina.) (*Conf. with Report, pp. 39, 48, 57, 62, 65 ; App., pp. 125, 152, 233-42, 289-91.*)	(1. *a*) Liqd. Ext. 1. in 1. Menstruum alcohol 60%. (*b*) Acetum, same as P. P. acetum scillæ. (2. *a* & *b*) as above.
2. **Urginea indica.** (*Conf. Ditto.*)	
Diaphoretics and Sudorifics (Form No. IX.).	
1. **Tylophora asthmatica.** (*Conf. with Report, pp. 8, 44. 45, 63 ; App., pp. 120, 127, 154, 282.*)	(1. *a*) Liqd. Ext. 1. in 1. Menstruum alcohol 60% and Acetic Acid. (Presumed to resemble Ipecacuanha.)
Expectorants (Form No. X.).	
1. **Acalypha indica.** (*Conf. with Report, p. 61 (5.)*)	(1. *a*) Liqd. Ext. of the root 1. in 1. Menstruum alcohol 60%.

* To be tried in the Central Provinces only.

Expectorants (Form No. X.)—contd.	*Remarks.*
2. **Adhatoda Vasica.** (*Conf. with Report, pp. 30, 38, 47, 50, 61, 68, 74; and App., pp. 148, 202, 211, 229-32, 252-57, 290, 383-414.*)	(2. *a*) Liqd. Ext. of the leaves 1. in 1. Menstruum alcohol 60%.
3. **Naregamia alata.*** (*Conf. with Report, p. 27; App., pp. 120, 127, 154.*)	(3. *a*) Liqd. Ext. of the roots and stems 1. in 1. Menstruum alcohol 60%.
4. **Euphorbia pilulifera.** (*Conf. with Report, p. 62; and App., p. 152.*)	(4. *a*) Fluid extract of fresh plant.

Sedatives (Form No. XI.).

1. **Datura fastuosa.** (*Conf. with Report, pp. 27, 62; App., p. 155*)	(1. *a*) Liqd. Ext. of leaves 1. in 1. Menstruum alcohol 60 %. (*b*) Extract, (*c*) „ alcoholicum } same as B. P.

Purgatives (Form No. XII.).

1. **Ipomœa hederacea.** (= Pharbitis Nil.) (*Conf. with Report, pp. 58, 62, 64, 94; and App., pp. 148, 153.*)	(1. *a*) The resin. (*b*) The seeds. (*c*) Compound powder of seed same as Pulv. Jalapæ Co. B. P.
2. **Ipomœa Turpethum.** (*Conf. with Report, pp. 62, 64; and App., pp. 120, 153.*)	2. (*a*) The resin.
3. **Rheum Emodi.** (*Conf. with Report, pp. 62, 64; App., p. 144.*)	(3. *a*) Compound powder, same as Pulv. Rhei Co. B.P. (*b*) Powder. (*c*) Liqd. Ext. 1. in 1. Menstruum alcohol 60%.
5. **Terminalia Chebula, Fruits.** (*Conf. with Report, p. 35; and App., p. 208.*)	
6. **Cassia Fistula, Fruits.** (*Conf. with Report, p. 35; and App., p. 208, 209.*)	
7. **Podophyllum Emodi.** (*Conf. with Report, pp. 30, 35-36, 44, 46, 52, 55, 62, 72-74; App., pp. 211-28, 251, 270, 273-75, 305, 357, 360, 363, 475-811.*)	(7. *a*) The resin.

* It seems probable that the enquiry into this product will have to be dealt with chiefly by the Madras Committee.

APPENDIX XIV.

AMENDED PROVISIONAL LIST.

Vesicants (Form No. XIII.).	*Remarks.*
1. **Mylabris cichorii.** (*Report, p. 62; App., pp. 121, 158.*)	Already in use at Medical Depôts. (1. *a*) Acetum, same as Acetum Cantharidis B. P. (*b*) Emplastrum, same as Plastrum Cantharidis B. P.
2. **Ammannia baccifera.** (*Conf. with Report, p. 28; App., p. 157.*)	(2. *a*) An etherial tincture of the fresh leaves and twigs.

Aid to digestion (Form No. XIV.).

1. **Carica Papaya.** (*Conf. with Report, p. 61.*)	1. Papain

APPENDIX XV. TO PARAS. 52 AND 63 OF THE REPORT. FORMS TO BE USED.

FORM No. I.

Suggested for record of results of observations.

TONICS.	
A. Name of Drug—	
B. Action—	
(1) *Stomachic Tonic;* increase appetite and digestion—	
(*a*) Simple bitter (*e.g.*, Calumba).	
(*b*) Aromatic bitter (*e.g.*, Cascarilla).	
(2) *Nervine Tonic* (*e.g.*, Strychnia).	
(3) *Cardiac Tonic* (*e.g.*, Digitalis).	
(4) *Blood Tonic.*	
C. Preparations used—	
D. Method of Administration, and Doses—	
E. Remarks.	
F. Signature and Designation of Reporting Officer; also Date.	

FORMS TO BE USED.

APPENDIX XV.

FORM No. II.

Suggested for record of results of observations.

ALTERATIVES.

A. Name of Drug—

B. Action—on—

(1) *Glandular system.*

(2) *Serous membranes.*

(3) *Mucous membranes.*

(4) *Cutaneous tissue.*

(5) *Anti-syphilitic.*

C. Preparations used—

D. Method of Administration, and Doses—

E. Remarks.

F. Signature and Designation of Reporting Officer; also Date.

TO PARAS. 52 AND 63 OF THE REPORT.

FORMS TO BE USED.

FORM No. III.

Suggested for record of results of observations.

ANTHELMINTICS.	
A. Name of Drug—	
B. Action—	
I. *Vermicide;* destroy entozoa.	
II. *Vermifuge;* expel entozoa.	
Action—	
(*a*) Thread-worms.	
(*b*) Round-worms.	
(*c*) Tape-worms.	
C. Preparations used—	
D. Method of Administration, and Doses—	
E. Remarks.	
F. Signature and Designation of Reporting Officer; also Date.	

FORMS TO BE USED.

APPENDIX XV.

FORM No. IV.

Suggested for record of results of observations.

ANTIPERIODICS.

FEBRIFUGES:

ANTIPYRETICS.

A: Name of Drug—

B. Action—

I. *Lower the body temperature in Pyrexia—*

(*a*) Lessen heat production (thermogenesis)

(*b*) Promote heat loss (thermolysis).

II. *Check periodically recurring Pyrexia.*

III. *Check periodically recurring maladies, such as Neuralgia.*

C. Preparations used—

D. Method of Administration, and Doses—

E. Remarks,

F. Signature and Designation of Reporting Officer; also Date.

TO PARAS. 52 AND 63 OF THE REPORT.

FORMS TO BE USED.

FORM No. V.

Suggested for record of results of observations.

ANTISPASMODICS.

CARMINATIVES.

A. Name of Drug—

B. Action—

I. On the *Voluntary* Muscular system.

II. On the *Involuntary* Muscular system—

(*a*) Paralyse Motor Centres (*e.g.*, Calabar Bean).

(*b*) Depress all vital functions (*e.g.*, Tobacco, Lobelia).

(*c*) Stimulate muscular fibres of intestine and expel gas (*e.g.*, Cajeput).

(*d*) Relax bronchial spasm (*e.g.*, Belladonna).

C. Preparations used—

D. Method of Administration, and Doses—

E. Remarks.

F. Signature and Designation of Reporting Officer; also Date.

FORMS TO BE USED.

APPENDIX XV.

FORM No. VI.

Suggested for record of results of observations.

ASTRINGENTS.	
A. Name of Drug—	
B. Action—	
(1) Direct intestinal constringent (*e.g.*, Tannic Acid).	
(2) Remote specific astringent and styptic, in the blood and system, arresting discharges or bleeding, *e.g.*, of uterus, lungs, etc. (*e.g.*, Gallic Acid ?).	
(3) Act on organs excreting them, as kidneys, skin, etc.	
(4) External local action; as styptic, astringent, antiseptic, etc.	
C. Preparations used—	
D. Method of Administration, and Doses—	
F Remarks.	
F. Signature and Designation of Reporting Officer; also Date.	

TO PARAS. 52 AND 63 OF THE REPORT.

FORMS TO BE USED.

FORM No. VII.

Suggested for record of results of observations.

DEMULCENTS.

A. Name of Drug—

B. Action—

(1) Direct; on digestive tract.

(2) Remote; on bronchi; on urinary passages, etc.

C. Preparations used—

D. Method of Administration, and Doses—

E. Remarks.

F. Signature and Designation of Reporting Officer; also Date.

APPENDIX XV.

FORM No. VIII.

Suggested for record of results of observations.

DIURETICS.	
A. Name of Drug—	
B. Action—	
(1) Increase *urinary water*.	
(2) Increase the *solid* constituents of the urine (*e.g.*, Juniper).	
(3) Urinary (Vesical) sedatives (*e.g.*, Buchu).	
C. Preparations used—	
D. Method of Administration, and Doses—	
E Remarks.	
F. Signature and Designation of Reporting Officer; also Date.	

TO PARAS. 52 AND 63 OF THE REPORT.

FORMS TO BE USED.

FORM No. IX.

Suggested for record of results of observations.

DIAPHORETICS.	
A. Name of Drug—	
B. Action—	
(1) Stimulant diaphoretic; stimulate sweat glands (*e.g.*, Nitrous Ether, Jaborandi).	
(2) Depressant, or Nauseant (*e.g.*, Antimony); dilate the capillaries.	
C. Preparations used—	
D. Method of Administration, and Doses—	
E. Remarks.	
F. Signature and Designation of Reporting Officer; also Date.	

FORMS TO BE USED.

APPENDIX XV.

FORM No. X.

Suggested for record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g.*, Squill).	
(2) *Sedative* Expectorant. (Depressant, nauseant). Increase secretion; lower blood pressure (*e.g.*, Ipecacuanha).	
C. Preparations used—	
D. Method of Administration, and Doses—	
E. Remarks.	
F. Signature and Designation of Reporting Officer; also Date.	

TO PARAS. 52 AND 63 OF THE REPORT. FORMS TO BE USED.

FORM No. XI.

Suggested for record of results of observations.

SEDATIVES.	
A. Name of Drug—	
B. Action (Internal)—	
I. *General Sedative :—*	
(*a*) Narcotic (*e.g.*, Opium).	
(*b*) Anæsthetic.	
II. *Local Sedative :—*	
(*a*) Pulmonary (*e.g.*, Stramonium).	
(*b*) Spinal (*e.g.*, Physostigma).	
(*c*) Nerves (*e.g.*, Conium).	
(*d*) Cardiac and Vascular (*e.g.*, Aconite).	
(*e*) Urinary (Vesical)—(*e.g.*, Hyoscyamus).	
C. Preparations used—	
D. Method of Administration, and Doses—	
E. Remarks—	
F. Signature and Designation of Reporting Officer, also Date—	

FORMS TO BE USED.

APPENDIX XV.

FORM No. XII.

Suggested for record of results of observations

PURGATIVES.

A.—Name of Drug—

B. Action—

(*a*) *Drastic* (*e.g.*, Gamboge). Act powerfully; cause catarrh of mucous membrane; increase glandular secretion and peristalsis.

(*b*) *Cathartic*:—as (*a*)—but milder (*e.g.*, Jalap).

(*c*) *Hydragogue*:—Disturb osmosis; stimulate glands; increase the fluids in dejecta (*e.g.*, Elaterium).

(*d*) *Simple purgative* (*e.g.*, Senna); actively increase peristalsis, and empty contents of intestine.

(*e*) *Laxative or Aperient*; increase peristalsis moderately (*e.g.*, Rhubarb, Cascara).

(*f*) *Cholagogue*:—Stimulate the liver; increase bile in stools (*e.g.*, Euonymin, Podophyllin).

C. Preparations used—

D. Method of Administration, and Doses—

E Remarks—

F. Signature and Designation of Reporting officer, also Date—

TO PARAS. 52 AND 63 OF THE REPORT.

FORMS TO BE USED.

FORM No. XIII.

Suggested for record of results of observations.

VESICANTS.	
A. Name of Drug—	
B. Action—	
(1) Time required to raise bullæ.	
(2) Does the raw surface heal readily, or ulcerate?	
(3) Permanent scar left?	
(4) Any constitutional effects, from absorption of active principle?	
C. Preparations used—	
D. Method of Administration, and Doses—	
E. Remarks—	
F. Signature and Designation of Reporting Officer, also Date—	

APPOINTMENTS.

APPENDIX XVI.

Communications on Local Committees (Appointment).

Conf. with App., XIII & XXI.

No. 2707, dated Simla, the 3rd May 1897.

From—The Director General, Indian Medical Service,

To—The Secretary to the Government of India, Home Department.

With reference to Home Department endorsement No. 173-Medical, dated 11th March 1897, I have the honour to forward, in original, letter No. 22, dated 21st April 1897, from the Secretary to the Indian Indigenous Drugs Committee, together with the letter therein referred to, No. 68, dated 8th April 1897, from Surgeon-Lieutenant-Colonel C. J. H. Warden. Surgeon-Lieutenant-Colonel Warden is a member of the Indian Indigenous Drugs Committee constituted under the Resolution of the Government of India, Home Department, No. $\frac{\text{24-Medical}}{\text{793-809}}$, dated 31st October 1895, and he was appointed in Bengal Government Resolution No. 935-Medical, dated 19th February 1897, to serve on the Local Committee for Bengal, formed to assist the Indian Indigenous Drugs Committee in their investigations. But for the reasons advanced by Surgeon-Lieutenant-Colonel Warden, which are concurred in by the President and Members of the Indian Indigenous Drugs Committee, it is desirable that he should be replaced on the local Committee for Bengal by an officer who is in a position himself to carry out investigations and at the same time is not a member of the Indian Indigenous Drugs Committee. I would accordingly beg to suggest that the Government of Bengal may be addressed to this end.

Lieut.-Col. Warden.

No. 2708.

Forwarded to the Secretary, Indian Indigenous Drugs Committee, for information with reference to his No. 22, dated 21st April 1897.

No. 3498, dated Simla, the 4th June 1897.

Memo. from—The Secretary to the Director General, Indian Medical Service,

To—The Secretary, Indian Indigenous Drugs Committee, Sudder Street, Calcutta.

Forwarded* for information, in continuation of this office No. 2708, dated 3rd May 1897.

* Copy of a letter from the Secretary to the Government of India, Home Department, No. 510, dated the 21st May 1897.

No. 509, dated Simla, the 21st May 1897.

From—The Secretary to the Government of India, Home Department,

To—The Secretary to the Government of Bengal, Municipal (Medical) Department.

With reference to the correspondence ending with your endorsement No. 938, dated the 19th February last, I am directed to forward, for the information of the Government of Bengal, a copy of the correspondence noted in the margin, in which it is recommended that Surgeon-Lieutenant-Colonel C. J. H. Warden should be replaced on the Committee formed in Bengal to assist the Indian indigenous Drugs Central Committee in their investigations, by an officer who is in a position himself to carry out investigations and who is not a member of the Central Committee.

Letter from the Director General, Indian Medical Service, No. 2707, dated the 3rd May 1897, and enclosures.

Lieut.-Col. Warden.

I am to say that if His Honour the Lieutenant-Governor has no objection, the Government of India will be glad if effect can be given to this recommendation of the Director General of the Indian Medical Service.

No. 510.

Copy forwarded to the Director General, Indian Medical Service, for information, with reference to his letter No. 2707, dated the 3rd May 1897.

No. 34—39 B., dated Calcutta, the 5th July 1897.

From—B. Foley, Esq., Under-Secretary to the Government of Bengal, Municipal Department, Medical Branch,

To—The Inspector General of Civil Hospitals, Bengal.

With reference to your letter No. 3773, dated the 29th June 1897, I am directed to say that, in accordance with your recommendation, the Lieutenant-Governor is pleased to appoint, in the place of Surgeon-Lieutenant-Colonel C. J. H. Warden, Surgeon-Captain J. F. Evans, Officiating Resident Physician, Medical College Hospital, and Professor of Pathology, Medical College, Calcutta, to be a member of the Committee formed in Bengal to assist the Indian Indigenous Drugs Central Committee in their investigations.

Capt. J. F. Evans. Conf. with p. 176.

APPENDIX XVI.

No. 3440-(Medical)

Copy submitted to the Government of India, Home Department, for information, with reference to the letter from that Department, No. 509, dated the 21st May 1897.

By order of the Lieutenant-Governor of Bengal,

B. FOLEY,

Under-Secretary to the Government of Bengal.

No. 772, dated Simla, the 20th July 1897.

Endorsed by the Home Department.

Copy forwarded to the Director General, Indian Medical Service, for information, in continuation of the endorsement from this Department, No. 510, dated the 21st May 1897.

No. 4531, dated Simla, the 26th July 1897

Endorsed by the Director General, Indian Medical Service.

Copy forwarded to the Secretary, Indian Indigenous Drugs Committee, 1, Sudder Street, Calcutta, for information, in continuation of this office No. 3498, dated the 4th June 1897.

APPENDIX XVII. A. TO PARA. 64 OF THE REPORT.

APPOINTMENT OF PRESIDENT.

No. 394, dated Calcutta, the 26th March 1898.

From—R. NATHAN, Esq., Under-Secretary to the Government of India, Home Department,

To—The Honorary Secretary, Indian Indigenous Drugs Committee.

I am directed to say that the Government of India have been pleased to appoint Brigade-Surgeon-Lieutenant-Colonel E. G. Russell, M.B., Professor of Materia Medica and Clinical Medicine in the Calcutta Medical College and *ex-officio* Second Physician in the College Hospital, to be the President of the Central Indigenous Drugs Committee in the place of Brigade-Surgeon-Lieutenant-Colonel Sir G. King, K.C.I.E., M.B., F.R.S., who has been permitted to resign the service of Government.

2. The Government of India have also been pleased to appoint Surgeon-Major D. Prain, Superintendent of the Royal Botanic Garden, Howrah, and Director of the Botanical Survey of India, to be a member of the Committee.

APPENDIX XVII. B. TO PARAS. 42, 48, 60 AND 66.

Provisional List.

Provisional List of Indigenous Drugs.

Subsequent Communications. *Conf. with pp. 201-10, 280-88; 301-02.*

Circular letter Nos. 46 to 52, dated Calcutta, the 28th September 1897.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee,

To—The Honorary Secretary of All Local Indigenous Drugs Committees.

Forms to be used

I have the honour to forward, in accordance with a resolution passed by the Central Indigenous Drugs Committee (paragraph 60, page 30), 25 copies of our Report. I am also desired to submit a set of forms for recording the results of therapeutic tests. The forms are stitched together as a matter of convenience by the Press, but it is desired that the sheets may be separated and each filled in as the observations are made. I am to invite the attention of your Committee to the Provisional Classified List of Drugs (given in the Appendix, pages 179-84), and to ask the favour of your suggesting other drugs of a local nature that, in the opinion of your Committee, had better be included in the enumeration there shown.

APPENDIX XVII. B.

2. The preparations that will be presently supplied to you for experimentation are—

(1) Tincture and powder of Calotropis procera.
(2) „ of Alstonia scholaris.
(3) „ of Picrorhiza Kurrooa.
(4) „ of Adhatoda Vasica.
(5) Resin of Podophyllum Emodi.

APPENDIX XVII. C.

Circular letter Nos. 65-69, dated Calcutta, the 6th January 1898.

From—George Watt, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee.

To—The Honorary Secretaries, Local Indigenous Drugs Committees.

Further Reminder to Madras, Burma, Bombay. See App., p. 301.

In continuation of this office letter, dated 28th September 1897, and with special reference to paragraph 60 of the Report, and also Appendix, pages 179-84 of the Proceedings of the Central Indigenous Drugs Committee, I have the honour to enquire whether your Committee have any suggestions to offer or any additions to make to the list of drugs enumerated in Appendix XIV.

2. An early answer will oblige, as it is desired to convene at an early date a meeting of the Central Committee to discuss the proposals and recommendations of the Local Committees.

APPENDIX XVII. D.

Dated the 16th February 1898.

From—The Honorary Secretary, Local Indigenous Drugs Committee, Panjab, Lahore,

To—George Watt, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee.

Provisional List: Panjab. Report, pp. 30 and 84

With reference to your No. 66, dated the 6th January 1898, forwarded to me under cover of Inspector-General of Civil Hospitals, Panjab's No. 562 of the 12th instant, I have the honour to say that the Panjab Committee has no suggestions to offer to the List of Drugs therein referred to.

APPENDIX XVII. E.

Local Committees and Provisional List.

Subsequent Communications.

Conf with pp. 280-88 301-02; 355.

No. 75, dated the 7th February 1898.

From—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Inspector-General of Civil Hospitals, Panjab, Lahore.

With reference to your No. 3200, dated 26th October 1896, to the Junior Secretary to the Panjab Government, and the endorsement No. 504, dated the 30th October, informing the Central Indigenous Drugs Committee of the appointment of the late Surgeon-Captain J. Murray as Honorary Secretary, Panjab Local Committee, I have the honour to submit the enclosed letter which was forwarded by my Office to Dr. Murray, but which has been returned by the Post Office. I am directed to invite you to lay the letter before the Committee for favour of early reply. At the same time I am desired to ask you to be so good as to furnish the Central Committee with the names of the gentlemen who have been appointed to the Panjab Local Indigenous Drugs Committee and the name of the Honorary Secretary who may be selected to succeed the late Dr. James Murray.

No. 11, dated Calcutta, the 2nd September 1896.

From—The Honorary Secretary, Central Indian Indigenous Drugs Committee, Calcutta,

To—The Chief Secretary to the Government of the Panjab.

With reference to the Resolution of the Government of India in the Home Department, No. $\frac{18\text{-Medical}}{643-661}$, dated the 31st July 1896, directing the formation of Sub-Committees in connection with the Indigenous Drugs Committee appointed by the Government of India, Home Department, Resolution No. $\frac{24\text{-Medical}}{793-809}$, dated 31st October 1895, I have the honour to request the favour of your informing me at an early date of the name of the officer selected to act as Honorary Secretary to the Sub-Committee of your Province.

No. 477, dated the 8th October 1896.

From—C. J. Hallifax, Esq., Junior Secretary to Government, Panjab and its Dependencies,

To—The Inspector-General of Civil Hospitals, Panjab.

In reply to your letter No. 2529, dated the 25th of August 1896, and with reference to paragraph 3 of the Resolution by the Government of India in the Home Department, No. $\frac{18\text{-Medical}}{643-661}$, dated the

31st of July 1896, I am directed to say that the Lieutenant-Governor is pleased to appoint the following officers to constitute a Committee to institute enquiries in the Panjab regarding the use of indigenous drugs, *viz.*:—

Committee.

The Principal of the Lahore Medical College.
The Professor of Materia Medica, Lahore Medical College.
The Teacher of Materia Medica, Lahore Medical School.
The Civil Surgeon, Peshawar.
The Civil Surgeon, Delhi.
The Civil Surgeon, Dharmsala.
The Civil Surgeon, Gurdaspur.

2. The Director General, Indian Medical Service, has been asked to be so good as to arrange for the appointment of the Medical Store-keeper, Panjab Command, as a member of the Committee. His reply will be communicated to you in due course.

3. Meanwhile I am to ask you to be so good as to communicate to the officers concerned the fact of their appointment to the Committee, and to request, with reference to the accompanying copy of a letter from the Honorary Secretary, Indian Indigenous Drugs Committee, that you will communicate to this office the name of the officer selected to act as Honorary Secretary of the Panjab Sub-Committee.

No. 11, dated 2nd September 1896.

Hospitals.

4. With reference to paragraph 3 of the Resolution of the Government of India above referred to, I am to say that the Provincial Committee should correspond direct on the subject of its labours with the Central Committee, and with reference to paragraph 4 I am to say that you should place yourself in communication with the Director General, Indian Medical Service, in view to arranging for the investigations to be undertaken in the hospitals and dispensaries to which it may be decided to issue preparations of indigenous drugs for trial and report.

No. 563, dated Lahore, the 12th February 1898.

From—SURGEON-COLONEL O'C. RAYE, Inspector-General of Civil Hospitals, Panjab,

To—The Honorary Secretary, Indigenous Drugs Committee, Calcutta.

In reply to your letter No. 75, dated 7th February 1898, I have the honour to forward a printed copy of the Panjab Government letter

TO PARAS. 42, 48, 60 AND 66 OF THE REPORT. PROVISIONAL LIST: Assam.

No. 477, of 8th October 1896, in which will be found the list of the Panjab Sub-Committee. The Professor of Materia Medica (Surgeon-Captain D. W. Sutherland), to whom the enclosure of your letter has been sent, is the Honorary Secretary. Honorary Secretary.

APPENDIX XVII. F.

Assam.

No. 19, dated Shillong, the 19th January 1898.

From—SURGEON-LIEUT.-COL. R. N. CAMPBELL, Honorary Secretary, Local Indigenous Drugs Committee, Assam,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

No Suggestions.

With reference to your letter No. 67, dated 6th January 1898, I have the honour to inform you that the Local Committee have no suggestions to offer nor any additions to make to the list of drugs enumerated in Appendix XIV.

APPENDIX XVII. G.

Burma.

No. 516-43, dated Rangoon, the 20th May 1897.

From—SURGEON-LIEUT.-COL. G. T. THOMAS, Superintendent, General Hospital, Rangoon,

To—BRIGADE-SURGEON-LIEUT.-COL. G. KING, M.B., F.R.S., C.I.E., President of the Indian Indigenous Drugs Committee, Howrah.

Supplied 28th Sept. 1897.

With reference to extract from Proceedings of the Government of India in the Home Department (Medical), under date Simla, the 31st July 1896, and Resolution No. $\frac{\text{24-Medical}}{\text{793—809}}$, dated the 31st October 1895, I have the honour to request that I may be informed what has been done in this matter, and that I may be supplied with a list of the indigenous drugs selected by the Central Committee for trial. (See paragraph 5 of above Resolution.)

PROVISIONAL LIST.

Burma.

APPENDIX XVII. G.

No. 60, dated the 22nd December 1897.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The President of the Sub-Committee on Indian Indigenous Drugs, Burma Province, Rangoon.

Forms supplied 28th Sept. 1897: see page 201.

With reference to your letter No. 516-43, dated the 20th May 1897, to the address of the President of the Indian Indigenous Drugs Committee, Calcutta, I have the honour to inform you that 25 copies of the Central Committee's Report with 25 sets of the forms to be employed in recording the results of therapeutic tests, were supplied to Surgeon-Captain C. Duar, Honorary Secretary, Local Indigenous Drugs Committee, Medical Store Depôt, Burma, under cover of my letter No. 51, dated 28th September 1897.

Further Communication. Conf. with p 201.

2. The list of Indigenous Drugs inculcated by the 5th paragraph of the Government of India's Resolution No $\frac{24\text{-Medical}}{793-809}$ (to which you allude) was duly framed by the Central Committee and furnished in the Appendix to their Report (pages 179-84). Further, the forms to be used in recording therapeutic results were framed in exact accord to each group of drugs dealt with in the provisional list (see pages 185-97). It is, however, but a provisional list as will be seen from the Central Committee's letter No. 9, dated the 8th May 1896, addressed to the Government of India, and Resolution 5 (page 161 of Appendix) last clause where the Local Committees are expected to offer suggestions as to the desirability of certain other drugs being added in conformity with local requirements. This fact was referred to in the above-cited letter by which copies of the Report and forms were transmitted to the Honorary Secretary of the Burma Local Committee. The Central Committee now await the suggestions that your Committee feel disposed to offer before amending the list into that which would be adopted for future guidance.

3. With regard to the action taken by the Central Committee I would beg to submit, for your acceptance and future reference, copy of the programme of operation of the Reporter on Economic Products for the year 1897-98, pages 33-35, where it will be seen the drugs specified in the provisional list have been recorded for collection. I would further invite your attention to the concluding paragraph of my letter No. 51, dated the 28th September 1897, where you will find it stated that the Central Committee had selected five of the drugs for immediate experiment. I would add that action has been taken to procure the crude materials of these five drugs, and that on these

coming to hand the preparations will be made and, in due course furnished to your Committee.

APPENDIX XVII. H.

No. 120, dated the 29th January 1898.

From—SURGEON-MAJOR H. E. BANATVALA, Honorary Secretary, Local Indigenous Drugs Committee, Betul, Central Provinces,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

Referring to your No. 69 of the 6th instant, I have the honour to forward herewith a list of the Local Indigenous Drugs recommended for trial by my Committee.

List of Local Indigenous Drugs recommended by the Local Indigenous Drugs Committee, Central Provinces.

Tonics.

1.—**Physalis (Withania) somnifera**; Native name "Asgond," a weed.

Parts used.—Dry sticks, buds and root.

Therapeutics.—A stomachic tonic, as good as gentian. Much used in debility following fevers and that brought on by sexual excess.

2.—**Desmodium gangeticum**; Native name "Salpani," a small shrub.

Parts used.—Young shoots and leaves.

Therapeutics.—A stomachic and carminative, used in atonic dyspepsia. More palatable than,, and an agreeable substitute for, columba and chiretta. A good bitter tonic for fever convalescence.

Expectorants.

1.—**Solanum Jacquini**; Native name "Bhatkotya," a trailing herb.

Parts used.—All parts.

Therapeutics.—Diaphoretic and expectorant. A warm decoction with ginger, 2 to 3 ozs,, three or four times a day is very efficacious in bronchitis.

PROVISIONAL LIST: C. P.

2.—"Banslochan"; a silicious concretion found in the joints of the female bamboo.

Therapeutics.—Expectorant. Mixed with a little carbonate of ammonia is much used in asthma and cough, especially of children.

Purgatives.

Report, p. 35; App., p. 183.

1.—**Terminalia Chebula**; Native name "Harra."

Parts used.—Ripe fruit.

Therapeutics.—Bruised and given in decoction is a safe and efficient purgative. It can also be given in powder. It also combines carminative and tonic properties.

Report, p. 35; App., p. 183.

2.—**Cathartocarpus (Cassia) Fistula**; Native name "Amaltas."

Parts used.—Pulp of fruit and bark of root.

Therapeutics.—A strong purgative.

Demulcents.

Report, p. 35; App., p. 182.

1.—**Corchorus fascicularis**; Native name "Bhuphali," a weed.

Parts used.—All parts.

Therapeutics.—Dried powder, 5 to 20 grs. in bronchitis as expectorant. A strong infusion, 1 to 2 ozs., three or four times a day as a diuretic, much used in gonorrhœa. It arrests scalding and smarting during micturition, and also stops the gonorrhœal discharge.

2.—**Pedalium Murex**; Native name "Bará Gokru," a herb.

Parts used.—Fruit.

Therapeutics.—An effective demulcent and diuretic in disorders of the urinary system when a mucilaginous agent is indicated. Much used in gonorrhœa.

Diuretics.

1.—**Boerhaaria diffusa**; Native name "Pathar-chatta," Beng. "Punernaba," a herb.

Parts used.—All parts.

Therapeutics.—An excellent, non-irritating diuretic, very useful in all forms of seral and hepatic dropsies. Used as a decoction.

2.—**Hygrophila spinosa**; Native name "Talmakhana," a herb.

Parts used.—Roots, leaves, seeds.

Therapeutics.—Demulcent and diuretic. Much used in dropsical affections and diseases of the genito-urinary system.

TO PARAS. 42, 48, 60 AND 66 OF THE REPORT. PROVISIONAL LIST: C. P.

Antispasmodics.

1.—**Mentha arvensis**; Native name "Pudina," a fragrant herb.

Parts used.—Leaves and young shoots.

Therapeutics.—Aromatic, carminative, antispasmodic and stomachic, 10 to 20 grs. of the powder with a little ginger, ajwan and black salt makes a splendid carminative powder.

BETUL; *The 29th January 1898.* — H. E. BANATVALA, *Surg.-Maj.*, *Honorary Secretary.*

No. 90, dated the 20th April 1898.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary, Secretary, Central Indigenous Drugs Committee, Calcutta,

To—SURGEON-MAJOR H. E. BANATVALA, Honorary Secretary, Indigenous Drugs Committee, Civil Surgeon, Betul, Central Provinces.

I am directed to inform you that at the meeting of the Central Indigenous Drugs Committee which met on the 15th instant, your letter and the recommendations of your Committee regarding the initial list of drugs selected for research and experiment was carefully considered. I am accordingly directed to express the appreciation of this Committee for the co-operation afforded them. In doing so I am to say that they accepted your recommendation to add **Terminalia Chebula** and **Cassia Fistula** to the selection of purgatives and **Corchorus fascicularis** to the section of demulcents. In the case of the latter drug it is proposed that experiment be confined to your provinces.

2. I am also to say that the Central Committee are of opinion that the other drugs mentioned in your esteemed favour need not for the present be taken up for enquiry.

3. As my office is entrusted with the duty of procuring the raw or crude drugs, I shall be very grateful if you could undertake to have collected for me one maund of the dried plant of **Corchorus fascicularis.** To make quite sure of the determination of the species it is necessary that a corresponding botanical specimen be furnished. If you can discover a trustworthy collector, the actual expenditure incurred would be defrayed from funds at my disposal.

PROVISIONAL LIST

N.-W. P.

APPENDIX XVII. J.

No. $\frac{12}{S.}$, dated Agra, the 11th January 1898.

From—The Honorary Secretary, Local Indigenous Drugs Committee, North-West Provinces and Oudh, Agra,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, Calcutta.

No suggestions.

With reference to your No. 65, dated 6th January 1898, I have the honour to say that I have received no communications or suggestions from any member of the Local Committee, and I presume, therefore, that there are no additions or suggestions we can offer to make to your list of drugs.

No 70, dated Calcutta, the 21st January 1898.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretary, Local Indigenous Drugs Committee, North-West Provinces and Oudh, Agra.

I trust you will pardon my enquiring whether you have called a meeting of the Local Committee and placed the papers furnished by me before them for consideration and report. Your letter No. $\frac{12}{S.}$ of the 11th instant leaves a doubt in my mind on this point. Before, therefore, placing that letter before the Central Committee as the reply furnished by the North-West Provinces and Oudh Local Committee, I think it as well to suggest that it would be desirable to obtain the opinions of the members.

Dated Agra, the 18th February 1898.

From—The Honorary Secretary, Local Indigenous Drugs Committee, North-West Provinces and Oudh, Agra,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, Calcutta.

Conf. with App., p. 285.

In reply to your letter No. 70, dated 21st January 1898, I have the honour to inform you that I have been made a special Health Officer, Agra, from the month of October 1897, and that Mr. E. Thomas, Assistant Surgeon, has taken over charge of my work for the present. I therefore beg that a copy of whole file, together with the names of members of Local Committee, may be sent to him for action as it has been mislaid by me. The two packets of pamphlets and a packet containing forms of statements have been made over to him.

APPENDIX XVIII. TO PARA. 67 OF THE REPORT.

SECTION (a).—*Clinical Investigations in Bombay Presidency with Podophyllum Emodi.*

No. 45, dated the 28th September 1897.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta, Conf with p. 199.

To—The Medical Store-keeper to Government, Bombay Command, Bombay.

At the last meeting of the Central Indigenous Drugs Committee it was resolved that the first set of preparations of Indian drugs should consist of the following —

1. Podophyllin, obtained from **Podophyllum Emodi.**
2. Tincture and powder of the root-bark of **Calotropis procera.**
3. Tincture of the rhizomes of **Picrorhiza Kurrooa.**
4. Tincture of the bark of **Alstonia scholaris.**
5. Tincture of the root of **Adhatoda Vasica.**

2. I am desired to invite your attention to paragraph 61, page 30, of the report, and to ask whether you would prefer to make the preparation from the drugs named or would rather that the supply for Bombay and Madras was prepared at the Bengal Depôt. Preparation.

3. I am further to invite your attention to the concluding part of paragraph 60 of this Committee's report and to ask you to be so good as to obtain an expression of opinion from the Bombay Committee whether the provisional lists, Appendix, pages 179-84, will suffice, or whether there are drugs of a local nature that your Committee would desire to have included in the enumeration. Provisional List.

APPENDIX XVIII. B.

No $\frac{G}{7507}$, dated the 8th October 1897.

From—The Medical Store-keeper to Government, Bombay Command, and President, Local Indigenous Drugs Committee, Bombay,

To—The Honorary Secretary, Indigenous Drugs Committee, Calcutta

In reply to your No. 45 of 28th ultimo, I have the honour to state that the resin of **Podophyllum Emodi** prepared by the Medical Store-keeper to Government, Bengal Command, Calcutta, has

already been recently tried at hospitals in this Presidency, and the results have been reported to the Director General, Indian Medical Service. The results are favourable to the introduction of this resin in lieu of the B. P. article.

2. Under the circumstances I would suggest, for the consideration of the Central Committee, whether it is necessary to again distribute the drug for trial in this Presidency.

3. I think it would be better as proposed in your second paragraph that the preparations be manufactured at Calcutta for Bombay and Madras. It is understood that the supply of the preparations for Madras and the Central Provinces will be made direct from Calcutta, and not through the medium of this Depôt.

Provisional List.

Conf. with letter G-2611, dated 25th April 1899 p. 301.

4. Personally I think the list of indigenous drugs prepared by your Committee will suffice for some years, but I shall submit the general question asked in your third paragraph for the views of this Committee, and shall communicate the result to you hereafter.

5. It is found that when drugs or other articles of medical store supply are forwarded to hospitals for trial and report, there is often much delay at hospitals in the submission of the necessary report, and the delay does not always appear to be due to unavoidable circumstances. The subject seems to be lost sight of, and, when the report is ultimately expedited, the information submitted is not as exhaustive as desirable.

6. Should the Central Committee consider that action should be taken at the outset, so as to secure constant attention to the subject on the part of officers in charge of trial hospitals, in view to the submission of reports within a reasonable or definite time after the receipt of the drugs, I would suggest that a nominal list of the trial hospitals be published, and that the officers in charge thereof be directed to pay this subject their special attention, and that they be required to submit their reports in the full details prescribed by your Committee not later than six months after receipt of the articles.

No. $\frac{V}{8123}$, dated Bombay, the 28th October 1897.

From—The Medical Store-keeper to Government, Bombay Command, Bombay,

To—George Watt, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Indian Museum, 1, Sudder Street, Calcutta.

With reference to your No. 46 of 28th ultimo, I have the honour to inquire whether the copies of the Central Committee Report

Bombay.

and Trial Hospitals' report form supplied to me are for local circulation only, or whether they are also intended for the use of Madras and Central Provinces.

No. 59, dated the 21st December 1897.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Medical Store-keeper to Government, Bombay Command. Bombay.

In reply to your letter No. G/[illegible], dated the 28th October 1897, I have the honour to state that 25 copies each of the Central Committee's Report with 25 sets of forms for recording the results of therapeutic tests have been forwarded direct to Madras and Central Provinces. By an oversight in my office, for which I regret, you were not advised of the fact. Such omission will not recur in future.

APPENDIX XVIII. C.

No. 70, dated the 7th January 1898.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Medical Store-keeper to Government, Bombay Command, and President, Local Indigenous Drugs Committee, Bombay.

I have the honour to acknowledge the receipt of your letter No. G/7581, dated the 8th October 1897, referring to the operations of the Central Indigenous Drugs Committee.

2. With regard to the distribution of the resin obtained from **Podophyllum Emodi** for medical trial by the Local Committees, I think it highly probable the Central Committee will agree with you that, under the circumstances mentioned, it would be unnecessary to repeat the experiments in your Presidency. It is the intention, however, of the Central Committee to ask other Presidencies to give their verdicts upon that drug. In this connection I should be obliged if you would let me have (to lay before the next meeting of Central Committee) a copy of the report on the trials of **Podophyllum** made in the Bombay Hospitals.

3. I note your opinion concerning the preparation of the selected drugs being made in Calcutta, and will refer it to

Trial Hospitals

APPENDIX XVIII. C.

Dr. Warden for necessary action in the matter. The supply of the raw materials has been indented for from the various forest officials, and it is hoped that the distribution of the tinctures will be made without much further delay.

Submission of Reports.

4. Your suggestions with regard to the submission of reports and the lists of trial hospitals to be selected by the Local Committees will be considered at the next business meeting of the Central Committee.

APPENDIX XVIII. D.

No. $\frac{G}{687}$, dated Bombay, the 29th January 1898.

From—The Medical Store-keeper to Government, Bombay Command, and President, Local Indigenous Drugs Committee, Bombay,

To—George Watt, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

In compliance with paragraph 2 of your No. 70 of 7th instant, I have the honour to forward herewith true copies of the documents marginally noted, being the correspondence on the subject of the trial of **Podophyllum Emodi** as a substitute for **Podophyllum peltatum**.

1. Copy of this office Nos. $\frac{G}{2064}$ to $\frac{G}{2070}$ of 21st March 1896, to the seven trial Hospitals.
2. No. 825, of 17th November 1896, from Senior Medical Officer, Sir Jamsetji Jijibhai Hospital, Bombay, with attached report.
3. No. 319, of 2nd November 1896, from the Physician, St. George's Hospital, Bombay.
4. No. 127, of 18th July 1896, from the Acting Surgeon, Goculdas Tejpal Hospital, Bombay.
5. No. 263, of 28th October 1896, from the Civil Surgeon, Karachi.
6. No. 327, of 15th November 1896, from the Civil Surgeon, Hyderabad, Sind.
7. No. 858, of 27th October 1896, from the Civil Surgeon, Poona.
8. No. 406, of 24th October 1896, from the Civil Surgeon, Ahmedabad.
9. No. $\frac{G}{7406}$, of 13th October 1896, from the Medical Store-keeper, Bombay, to Director General.
10. No. $\frac{G}{7727}$, of 13th November 1896, from the Medical Store-keeper, Bombay, to Director General.
11. No. $\frac{G}{8042}$, of 18th November 1896, from the Medical Store-keeper, Bombay, to Director General.

TO PARA. 67(a) OF THE REPORT.

PODOPHYLLUM

Bombay.

Dated the 21st March 1896.

From—The Medical Store-keeper to Government, Bombay Command, Bombay,

To—The Physician in charge, St. George's Hospital, Bombay, No. $\frac{G}{2064}$ of 1896.

" Senior Medical Officer, Sir Jamsetji Jijibhai Hospital, Bombay, No. $\frac{G}{2065}$ of 1896.

" Medical Officer in charge, Goculdas Tejpal Hospital, Bombay, No. $\frac{G}{2066}$ of 1896.

" Civil Surgeon, Karachi, No. $\frac{G}{2067}$ of 1896.

" " " Hyderabad, Sind, No. $\frac{G}{2068}$ of 1896.

" " " Poona, No. $\frac{G}{2069}$ of 1896.

" " " Ahmedabad, No. $\frac{G}{2070}$ of 1896.

Issue of the Resin.

I have the honour to advise the despatch this day of a parcel to your address containing one ounce of **Podophyllum Emodi** resin (Indian) proposed as a substitute for the resin obtained from **Podophyllum peltatum** for favour of trial and early report. This office has to submit a report to the Surgeon-General, India, on the subject, so I hope you will be able to furnish me with some particulars as soon as convenient.

No. 825, dated Bombay, the 17th November 1896.

Report of Action.

From—The Senior Medical Officer in charge, Sir Jamsetji Jijibhai Hospital, Bombay,

To—The Medical Store-keeper to Government, Bombay Command, Bombay.

With reference to your letter No. $\frac{G}{2065}$, dated 21st March last, and subsequent Memo. No. $\frac{G}{8100}$, dated 12th instant, I have the honour to forward herewith report on the action of Resin of Indian **Podophyllin** by Surgeon-Captain L. F. Childe, Second Physician, Sir Jamsetji Jijibhai Hospital.

APPENDIX XVIII D

PODOPHYLLUM

Bombay

Pill Podophyllin

Indian Rosin :

Report from Sir Jamsetji Jijibhai Hospital

No of Col.	Disease	Condition of bowels before prescribing the first dose.	Date of first prescribing	Date of action.	No. of stools after first dose.	Amount of first dose.
14	Syphilis . .	Bowels regular .	29th Oct	...	1	⅓ gr.
1	Tabes Mesenterica.	Bowels were costive for eight days.	29th „	.	2	½ „
15	Bronchitis .	Bowels were costive one day previous	28th „	...	*Nil*	⅓ „
4	Subacute Rheumatism	Bowels did not move day previous.	26th „	...	*Nil*	¼ „
9	Constipation .	Admitted for constipation.	26th „	..	*Nil.*	½ „
7	Bronchitis .	Bowels costive day previous.	28th „	..	*Nil.*	¼ „
4	Chronic Bronchitis and Emphysema.	Bowels costive day previous.	4th Nov.	...	2	½ „
6	Bronchitis .	Bowels constipated.	4th „	5th Nov.	2	¼ „
7	Syphilis . .	Bowels regular .	27th Oct.	28th Oct	1	¼ „

(Indian).

Any discomfort or griping after first and subsequent doses.	Subsequent prescribing with amount of dose and No. of stools next day.	REMARKS.
None.		
Had vomiting next day, no griping.	......	Had vomiting next day.
Had griping and uneasiness.	Bowels did not move next day, so on 29th pil. Podoph. 1 gr. was prescribed, had *no* motion Mist. alba was given and had 3 motions. 2nd November 1 gr Podoph, and had one motion.	
Had griping; subsequent prescribing produced flatulence and griping.	On 28th October a 2nd dose of pil Podoph. gr 1 given, *no* motion, next day Ol. Ricini given and had one motion. 2nd November ½ gr dose of Podoph, 2 motions.	
Had griping after dose and after subsequent doses.	On 28th October 1 gr. dose of Podoph, and had 2 motions. On 30th October another dose of 1 gr and had no motion next day.	
No griping . .	On 29th October ½ gr. given and had *one* motion next day. On 30th October ½ gr given and had one motion next day.	
" " . .	Eng. pil Podoph. on 13th November, and had one motion, no griping.	
" " . .	.....	Eng Podoph given— on 10th November. " 13th "
" " . .	On 2nd November ½ gr dose and had 3 stools next day.	Eng. Podoph given— on 9th November. " 13th "

PODOPHYLLUM:

Bombay.

APPENDIX XVIII. D.

Pill Podophyllin

Indian Resin; Report from Sir Jamsetji Jijibhai Hospital.

No. of Col.	Disease.	Condition of bowels before prescribing the first dose.	Date of first prescribing.	Date of action.	No. of stools after first dose.	Amount of first dose.
10	Pleurisy and Pneumonia.	Bowels regular .	31st Oct.	1st Nov.	2	½ gr.
16	Gonorrhœal Rheumatism.	Bowels not moved day previous.	27th „	Remained costive.	*Nil.*	½ „
8	Scurvy . .	Bowels costive day previous.	26th „	27th Oct.	1	½ „
7	Malaria . .	Bowels were regular.	13th Nov.	14th Nov.	2	½ „
5	Heart Disease .	Bowels were regular.	13th „	14th „	1	½ „
14	Malaria, enlarged spleen and xerosis.	Had 3 liquid stools day previous.	13th „	14th „	1	½ „
12	Malaria . .	Bowels regular .	13th „	14th „	1	½ „

The 13th November 1896.

TO PARA. 67 (*a*) OF THE REPORT.

PODOPHYLLUM

(*Indian*). Bombay.

Any discomfort or griping after first and subsequent doses.	Subsequent prescribing with amount of dose and No. of stools next day.	REMARKS.
No griping . .	On 2nd November ½ gr. dose repeated, had *one* motion next day and griping continued for two days.	
First dose no griping, 2nd dose of 1 gr. produced griping.	Bowels remained costive 3 days after the first dose. On 29th 1 gr. of Podoph. given and no motion. Mist. alba on 30th and next day 3 motions. On 4th November ⅓ gr. Podoph., 1 motion. On 6th November ½ gr. Podoph., no motion next day.	Bowels remained costive till 29th, another dose of 1 gr of the pill given and still had no motion, so Mist. alba was given on 30th and next day had 3 motions.
No griping . .	On 29th 1 gr., no motion next day, remained costive till 31st. 1st November 1 gr, bowels not moved, remained costive till 4th November On 5th November 1 gr. given, one motion next day.	On 8th November Haust. Ol. Ricini, and on 10th had 2 motions taking anti scorbutic mixture. Bowels continuing.
" "		
" "		
" " . .	On 9th November Eng. Podoph. ¼ gr. given and had 3 motions next day, and no griping. On 13th November ½ gr. Eng. Podoph., 3 liquid motions, no griping.	
" "		

L. F. CHILDE, *Surgn.-Capt.*,
Sir Jamsetji Jijibhai Hospital.

PODOPHYLLUM: Bombay

APPENDIX XVIII. D.

English Resin; Report from Sir Jamsetji Jijibhai Hospital.

Pill Podophyllin

No of Col	Disease.	Condition of bowels before prescribing the first dose.	Date of first prescribing	Date of action.	No. of stools after first dose.	Amount of first dose.
6	Bronchitis .	Bowels regular .	10th Nov	11th Nov.	1	½ gr.
7	Syphilis . .	Bowels constipated	9th „	10th „	1	½ „
12	Malaria .	Bowels not costive.	9th „	10th „	1	½ „
14	Xerosis, Malaria and enlarged spleen	Had 2 motions day previous.	9th „	10th	2	½
16	Gonorrhœal Rheumatism.	Bowels costive 2 days previous.	9th „	Did not move next day	Nil.	½ „
7	Pulmonary Emphysema.	Bowels regular .	10th „	11th Nov	3	½ „
14	Malaria, enlarged spleen	Bowels moved 3 days previous.	9th „	10th „	3	½ „
9	Heart Disease .	Had frequency of motions when admitted	10th „	11th „	10	½ „
11	Phthisis . .	Bowels regular .	13th „	...	Nil.	½ „
11	Malaria . .	Regular . .	13th „	14th Nov	Nil.	½ „
4	Chronic Bronchitis and Emphysema	Bowels regular .	13th „	14th „	1	½ „

The 13th November 1896.

(*English*).

Any discomfort or griping.	Subsequent prescribing with amount of dose and No. of stools next day	REMARKS.
No griping	On 13th November ½ grain Eng Podoph given, had one liquid motion and no griping.	First dose of Ind Podoph given on 4th November.
" "	On 13th November ½ grain Eng. Podoph given, bowels moved once, and had griping	First dose of Ind Podoph given on 27th October.
Had pain in the umbelical region	...	Haust. Sennæ was given a day previous, and had 2 motions
None	On 13th November ½ grain Eng Podoph given and liquid motions, and no griping	
Had griping	On 10th November 1 grain of Eng Podoph given had much griping, but bowels remained costive. *Mist. alba* given on 11th, and next day two motions and griping ceased	First dose of Ind Podoph on 27th October
No "	... ..	Taking saline mixture on 12th, bowels moved 4 times.
" "	On 13th November pil. Podoph (Eng.) ½ grain given, bowels moved once, no griping.	Bowels are somewhat loose from the time of admission
Had griping after the first dose	......	
No griping	......	
" "	......	
" "	On 4th November pil Podoph. (Ind) ½ grain, 2 motions; no griping.	

L. F CHILDE, *Surg.-Capt.*,
Sir Jamsetji Jijibhai's Hospital

PODOPHYLLUM: Bombay.

APPENDIX XVIII. D.

Report on the action of Resin of Indian Podophyllin.

The **Podophyllin** was given in ½ grain doses with the same amount of extract of **Hyoscyamus** and was tried on patients suffering from various diseases, who were either convalescent or not seriously ill. Resin of English **Podophyllin** also in ½ grain doses, with the same amount of extract of **Hyoscyamus**, was similarly tried.

Action about the same.

The general conclusion arrived at from comparative trial of the two kinds of **Podophyllin** was that their action was about the same.

A few particulars observed about the action of Indian **Podophyllin** are subjoined. Half grain doses given at night, usually caused two evacuations of the bowels next morning, the motions being greenish and semi-liquid: and no griping or discomfort were complained of, except in those patients, whose bowels were not moved by the **Podophyllin.** In one case a ½ grain dose caused 4, and in another 7, semi-fluid motions; but these were the only patients in whom the drug produced anything like diarrhœa.

Per contra, one boy aged 15 took ½ grain of the resin on two consecutive nights, and 1 grain on the third night, without having any motion; but he stated that he was always rather constipated.

Annexed are tables shewing the effects of the two kinds of **Podophyllin** on some of the patients, to whom the drugs were given.

L. F. CHILDE, *Surgn.-Capt., I.M.S.,*
Second Physician, Sir Jamsetji Jijibhai Hospital.

The 14th Novmeber 1896.

No. 319, dated Bombay, the 2nd November 1896.

From—BRIGADE-SURGEON-LIEUT.-COL. JAMES ARNOTT, M.D., Physician in charge, St. George's Hospital, Bombay,

To—The Medical Store-keeper to Government, Bombay Command, Bombay.

Less efficacious.

With reference to your letter No. $\frac{G}{2064}$, dated 21st March 1896, I have the honour to state that the **Podophyllin Emodi** resin (Indian) has been freely administered and found to be less efficacious than **Podophyllum peltatum.**

TO PARA. 67 (a) OF THE REPORT.

PODOPHYLLUM

Bombay.

No. 127, dated Bombay, the 18th July 1896.

From—BRIGADE-SURGEON-LIEUT.-COL. C. F. PETERS, M.B., Acting Surgeon to the Goculdas Tejpal Hospital, Bombay,

To—The Medical Store-keeper to Government, Bombay Command, Bombay.

In reply to your letter No. G—2066, dated 21st March last, I have the honour to inform you that the **Podophyllum Emodi** resin (Indian) has been used at this Hospital in lieu of the resin obtained from **Podophyllum peltatum** during the past three or four months, and all the medical officers doing duty at this Hospital report that it has similar effects in similar doses to those of the officinal preparation. Similar Effects.

No. 263, dated Karachi, the 28th October 1896.

From—SURGEON-LIEUT.-COL. W. H. HENDERSON, Acting Civil Surgeon, Karachi,

To—The Medical Store-keeper to Government, Bombay Command, Bombay.

With reference to your letter No. G—7063, dated 21st instant, I have not been able to give the drug a fair trial, therefore I am unable to give a definite opinion as to the efficacy of the drug.

No. 327, dated Hyderabad, the 15th November 1896

From—SURGEON-MAJOR RICHARD BAKER, M.D., Acting Civil Surgeon, Hyderabad,

To—The Medical Store-keeper to Government, Bombay Command, Bombay.

With reference to your letter No. G.—2068 of 21st March 1896, I have the honour to report that the Indian **Podophyllin** resin referred to has been used in this Hospital, and has been found a satisfactory substitute for the European variety. Satisfactory.

No. 858, dated Poona, the 27th October 1896.

From—SURGEON-LIEUT.-COL J. P. GREANY, M.D., Civil Surgeon, Poona,

To—The Medical Store-keeper to Government, Bombay Command, Bombay.

With reference to your letter No. G.—2069, dated 21st March last, and subsequent reminder, No. G.—7601, dated 21st instant, I have the

honour to report that the supply of "**Podophyllum Emodi** resin" (Indian) sent here for trial has been used in the wards of this Hospital and found to be an efficient substitute for **Podophyllum peltatum.**

Efficient Substitute.

— — — —

No. 406, dated Ahmedabad, the 24th October 1896.

From—SURGEON-LIEUT.-COL. M. S. BARTHOLOMEUZ, M.B., Civil Surgeon of Ahmedabad,

To—The Medical Store-keeper to Government, Bombay Command, Bombay.

With reference to your No $\frac{G.}{2070}$ of the 21st March 1896, I have the honour to inform you that I have had no sufficient opportunity for testing the efficacy of the **Podophyllin** sent for trial, and am therefore not in a position to furnish a definite report as to its efficacy or otherwise as a cholagogue or hepatic stimulant.

No. $\frac{G}{7406}$, dated Bombay, the 13th October 1896.

From—The Medical Store-keeper to Government, Bombay Command, Bombay,

To—The Secretary to the Director General, Indian Medical Service, Simla.

With reference to your reminder No 5010, of 8th instant, I have the honour to state that the resin was forwarded to seven hospitals for trial and report on 31st March last, but so far only one of the charges has furnished the required report. The remaining reports have this day been expedited, and directly they come to hand the necessary report will be submitted to your office.

Similar Effects.

2. The one report received says that the article "has similar effects in similar doses to those of the officinal preparation."

No. $\frac{G.}{8127}$, dated Bombay, the 13th November 1896.

From—The Medical Store-keeper to Government, Bombay Command, Bombay,

To—The Secretary to the Director General, Indian Medical Service, Simla.

With reference to your endorsement No. 946 of 6th March last, I have the honour to state that the resin was forwarded to the institutions marginally noted in March last for trial and report, and that so far reports have been received from five of them, true copies of which are attached.

1 St. George's Hospital, Bombay
2. Sir Jamsetji Jijibhai Hospital, Bombay.
3 Goculdas Tejpal Hospital, Bombay.
4. Civil Hospital, Karachi, Sind.
5. " " Hyderabad, Sind.
6. " " Poona.
" " Ahmedabad.

Bombay.

2. It will be seen that in two instances (Nos 3 and 6) the drug is highly spoken of; that in Nos. 4 and 7 no definite conclusion has been arrived at as the resin does not appear to have been sufficiently tried, while at No. 1 the article is said to be less efficacious than the B. P. drug. None of the trial officers speak of the drug as an undesirable substitute for the imported article. Highly Spoken of

3. The result of the trial, therefore, is satisfactory and, provided the cost be favourable, there seems no reason why the **P. Emodi** resin should not be introduced in lieu of that obtained from the **P. peltatum.** It is understood that the Indian resin would always be freshly prepared annually, a circumstance which strengthens the desirability of substituting the local for the imported article. Advantageous Circumstance.

4. About 8lb of the resin are yearly expended here, and the article costs Government R7-13-3 per lb or in all R62-10-0 a year.

No. G/8622, dated Bombay, the 18th November 1898.

From—The Medical Store-keeper to Government, Bombay Command, Bombay,

To—The Secretary to the Director General, Indian Medical Service, Simla.

In continuation of my No. G/8127, of 13th instant, I have the honour to forward herewith copies of No 825 of 17th current, from the Senior Medical Officer, Sir Jamsetji Jijibhai Hospital, Bombay, with accompaniments, reporting the result of trial of **P. Emodi** at that institution. Compares Favourably

2. It will be seen that in this instance also the Indian compares favourably with the imported article.

APPENDIX XVIII. E.

No. 2203, dated Calcutta, the 10th January 1898.

From—The Medical Store-keeper to Government, Bengal Command, Calcutta,

To—George Watt, Esq, M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, Calcutta.

I have the honour to request the favour of your supplying me with one maund **Podophyllum Emodi** rhizome for the manufacture of Podophylli Resina, also please fill up and sign the accompanying forms and return, to enable the article to be brought on the depôt books. Bengal Indent from Store-keeper.

PODOPHYLLUM

Bengal.

APPENDIX XVIII. F.

No. 59, dated the 11th January 1898.

From—The Reporter on Economic Products to the Government of India, Calcutta,

To—The Medical Store-keeper to Government, Bengal Command, Calcutta.

In reply to your No. 2203, dated the 10th January, on the subject of the supply of one maund of the roots of **Podophyllum,** I have the honour to inform you that my stock is exhausted. The parcel presented to your department on a former occasion was collected with the view to having the merit of the root tested. If the Medical Stores require an annual supply, I presume there might be little difficulty in that being arranged; but as no such arrangement has been made and the article is not one regularly traded in by the Native drug brokers and merchants, the agency would have to be organised and delay in the first instance would be unavoidable.

2. If you are in a position to give a fixed annual indent and will be so good as to name the quantity required year by year on some date agreed upon, I shall have much pleasure in taking the initial action, and, when arrangements have been finally made, shall place you in direct dealings with the contractors. In the meantime I regret being unable to meet your wishes, and accordingly return the forms supplied by you under cover of your letter of date.

APPENDIX XVIII. G.

No. 62, dated the 5th January 1898.

Previous Correspondence with the Panjab.

From—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Conservator of Forests, Panjab.

From Conservator of Forests, to Reporter on Economic Products:—

No. 1121,	dated the	3rd July 1893.
„ 2497	„	28th November 1893
2668		11th December 1893.
2981		12th January 1894.
3704		20th March 1894.
3768		28th „

With reference to the marginally-noted correspondence, I have the honour to request you to kindly assist me by collecting one maund of the roots of **Podophyllum Emodi.**

2. It may interest you to know that the previous consignment was sent to the Research Department of the Imperial Institute, and a preliminary report upon the drug has shown that the Indian root is as efficacious as the well-known American **Podophyllum.** A hand-book on the subject was published in 1892 in which you will find a great deal of useful information on this subject. Panjab Supply

3. The root is required in the present instance on behalf of the Central Indigenous Drugs Committee formed in consequence of a Resolution of the Government of India. The Committee has under-taken to issue carefully made preparations of a few selected Indian drugs to be tested in Hospitals and Dispensaries throughout the country. The raw material must of necessity be from authentic sources and for this reason I am directed to ask you if you would be so good as to procure the root of the same quality as that formerly collected by you.

APPENDIX XVIII. H.

No. 3217, dated Lahore, the 16th February 1898.

From—C. F. ELLIOTT, Esq., Conservator of Forests, Panjab,
To—The Reporter on Economic Products to the Government of India, Calcutta.

In reply to your letter No. 62, dated 5th January 1898, I have the honour to inform you that one maund of the roots of **Podophyllum Emodi** will be collected and sent to you in due course from Hazara. Collected in Hazara

I am sending herewith a copy of a letter No. 232, dated 4th February 1898, from the Divisional Forest Officer, Hazara Division, to show you the action already taken in this circle with regard to this product.

No. 232, dated the 4th February 1898.

From—The Deputy Conservator of Forests, Hazara Division,
To—The Conservator of Forests, Panjab.

In reply to your endorsement No. 3092, dated 27th ultimo, I have the honour to inform you that the total amount of **Podophyllum Emodi** roots collected last year was sent to Messrs. Bertie, Smith & Co. of Bombay, and that none remains in stock. As that "Firm" has repeatedly expressed its willingness to take as much of root as can be collected, and has up to now been supplied with the Exports from the Panjab.

following amounts, I should imagine that there can be no qustion about the value of the "drug":—

	Mds.	Srs.
1892-93	6	9
1893-94	...	
1894-95	70	30
1895-96	40	34
1896-97	39	14
1897-98	39	37

Calotropis. Conf. with Report, pp 8, 9, 11, 37, 46, 54, 55, 61.

APPENDIX XVIII. I.

SECTION (b).—*Calotropis gigantea.*

No. 55, dated the 9th November 1897.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Director of Land Records and Agriculture, Bengal, Calcutta.

With reference to report No. 85 (pages 33 and 34) of the Revised Programme of Collections to be made for the Indian Museum and Imperial Institute during 1897-98, I have the honour to ask you to be so good as to furnish the Honorary Secretary, Central Indigenous Drugs Committee, Indian Museum, 1, Sudder Street, Calcutta, with one maund of the root-bark of **Calotropis gigantea**. I would explain that the drug is required in order to test its therapeutic properties.

APPENDIX XVIII. K.

SECTION (c).—*Picrorhiza Kurrooa.*

Picrorhiza. Conf with Report, pp 12, 30, 37, 47, 50.

No. 104, dated the 7th February 1898.

From—The Chief Medical Officer, Kashmir,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

With reference to a letter No. 56, dated the 19th November 1897, from the Reporter on Economic Products to the Government of India, to the Resident in Kashmir, I have been directed by the Kashmir Darbar to supply you with one maund of Rhizomes of **Picrorhiza**

 ADHATODA

Kurrooa. I send the article* in one package to your address by Railway, and enclose herewith the Railway receipt for the same. Will you please acknowledge when you receive the article.

* Reg. No. 10365.

APPENDIX XVIII. L.

SECTION (*d*).—*Alstonia scholaris.* Alstonia

No. 54, dated the 9th November 1897.

From—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Director of Land Records and Agriculture, Bengal, Calcutta.

With reference to report No. 85 (pages 33 and 34) of the Revised Programme of Collections to be made for the Indian Museum and Imperial Institute during 1897-98, I have the honour to ask you to be so good as to furnish the Honorary Secretary, Central Indigenous Drugs Committee, Indian Museum, 1, Sudder Street, Calcutta, with one maund of **lstonia scholaris** bark to test its therapeutic properties.

APPENDIX XVIII. M.

SECTION (*e*).—*Communications on Adhatoda Vasica.* Adhatoda

No. 57, dated the 9th November 1897.

From—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Director of Land Records and Agriculture, Bengal, Calcutta.

With reference to report No. 85 (pages 33 and 34) of the Revised Programme of Collections to be made for the Indian Museum and Imperial Institute during 1897-98, I have the honour to ask you to be so good as to furnish the Honorary Secretary, Central Indigenous Drugs Committee, Indian Museum, 1, Sudder Street, Calcutta,

with one maund of each of **Adhatoda Vasica** root, bark, and leaves to test their therapeutic properties.

APPENDIX XVIII. N.

No. 126-A., dated the 24th January 1897.

From—The Director of Land Records and Agriculture, Bengal, Calcutta,

To—The Honorary Secretary, Indigenous Drugs Committee, Calcutta.

With reference to your letter No. 57, dated 9th November 1897, I have the honour to send herewith one maund and ten seers of leaves of **Adhatoda Vasica** in dry state The samples of the root and the bark of the plant will follow

* Reg. No 10329.

No. 71, dated the 3rd February 1897.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Director of Land Records and Agriculture, Bengal, Calcutta.

I have the honour to acknowledge with thanks the receipt of your letter No. 126-A., dated the* 24th ultimo, and of the marginally-noted product advised therein.

Adhatoda Vasica leaves, 1 maund 10 seers.

2. I note that the root and bark of the plant will follow in due course.

APPENDIX XVIII. O.

No. 72, dated Calcutta, the 4th February 1898.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—SURGEON-LIEUT.-COL. C. J. H. WARDEN, M.D., Medical Storekeeper, Bengal Command, Calcutta.

In connection with paragraph 61 of the Report of the VIIIth Meeting of the Central Indigenous Drugs Committee, I have the

 ADHATODA

honour to forward a sample of 2lb of the dried leaves of **Adhatoda Vasica.** You will observe that it was decided (page 183, Appendix) that the preparation to be issued to hospitals should be made from the roots of that plant. In ordering a supply of the root, I also asked for the dried leaves, and the latter has now come to hand, and, I am informed, the former (roots) may be expected shortly.

2. You are aware that in works on this subject both the leaves and the roots are used as an expectorant. It would accordingly seem desirable that a comparative examination of their respective merits should be made. This point may possibly have to be submitted to the Committee for decision; but as one maund and ten seers of the dried leaves have come to hand, I shall be glad of your opinion on the point here raised, namely, whether it would be desirable to have a tincture made from the leaves as well as from the roots. If you agree with me on this point, I shall be glad to place at your disposal one maund of the leaves. The balance I shall retain as material to furnish type samples to the Medical Schools as decided by the Committee (paragraph 62). Leaves *versus* Roots.

APPENDIX XVIII. P.

No. 2388, dated Calcutta, the 5th February 1898.

From—The Medical Store-keeper to Government, Bengal Command, Calcutta,

To—GEORGE WATT, Esq., M B. C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Calcutta.

With reference to your No. 72, dated 4th instant, forwarding 2lb of dried leaves of **Adhatoda Vasica**, and raising the question whether leaves and roots, one or both, should be used for preparation of a tincture for experimental purposes, I beg to submit as follows.

2. As the drug contains a definite crystalline active principle, the question of the part to be used would preferably be determined by ascertaining which portion, leaves or roots, is richest in active principle I am not aware that at present this point has been settled

3. Another point on which it would be desirable to obtain information is the best period of the year for collecting the plant, with respect to its alkaloid content; and again the question of the best locality for obtaining supplies is of moment, as according to Mr. Hooper, page 11, Hand-book No. 10, **Adhatoda Vasica,** "the Madras samples being richer in alkaloid than those of Northern India." *Conf. with Report para 67.*

Committees Final Reports. Character of. *See Report, para. 69.*

4. I am very strongly of opinion that the work which is now being undertaken by the Indian Drugs Committee ought to be as thorough as possible. It is not pressed for time in the submission of a report, and I think it is the duty of the Committee, if its labours are ever to be of scientific value, to most carefully examine all points connected with the Pharmacy, Chemistry, and Physiological action of the drugs selected for experimental purposes, and so be in a position to give valid reasons for all its recommendations. The literature connected with Indigenous drugs teems, as you are aware, with observations—often wholly unreliable —and frequently emanating from persons who have never been trained to observe and who have never made an accurate observation in their lives. It will be in the highest degree deplorable if the final report of the Committee results in a mish mash of crude unsifted and unreliable so-called information.

Chemical Examiner. *Conf. with Report, para. 68.*

Alkaloid from the Leaves *Conf. with App., p. 292.*

5. If you will place at my disposal, say, one maund of the dried leaves, I will work it up and prepare a supply of the alkaloid which will then be available for physiological experiments, and I would suggest that the Chemical Examiner to Government be asked to determine the relative alkaloidal value of the leaves and roots grown in different parts of India and at varying seasons of the year.

APPENDIX XIX. A. TO PARAS. 67 (*f*), 79, 95 OF THE REPORT.

SECTION (*f*).—*Communications on Indian Squills.*

(*See also pp* 289-91.)

No. 30, dated the 23rd June 1897.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Medical Store-keeper to Government, Madras Command, Madras.

Report, pp. 39, 78, and 57 See App., pp 125, 152, 289 91.

I have been engaged reading the proofs of the Report of Proceedings of the Central Committee preparatory to printed copies being issued to the Local Committees. A difficulty has been experienced regarding a passage which occurs in Dr. Dobie's contribution, "Notes regarding the drugs of local supply used in Madras during 1894-95 and 1895-96." The passage to which I allude is that on **Scilla**, page 79 of proof copy appended. There are three plants apparently used in India as Squills:—

(*a*) The imported **Urginea Scilla**, the true Squill.

(*b*) **Scilla indica**, *Baker*, a synonym for which is **Ledebouria hyacinthoides**, *Steud*; **Melanthium hyacinthoides**, *Herb. Mad.*

(*c*) **Urginea indica**, *Kunth*, a synonym for which is **Scilla indica**, *Roxb.*

2. I would explain that, so far as can be discovered in consultation with the botanical authorities of the Calcutta Herbarium (*b*) is the chief Indian medicinal form. This conclusion seems also to have been arrived at by you. But Mr. Lawson and Mr. Hooper were in error in thinking the plant was a **Ledebouria**. It is the so-called **L. hyacinthoides** which Mr. Baker was quite correct in transferring to the genus **Scilla**. Under these circumstances it has been suggested that the passage in question should be revised and the two plants spoken of as **Scilla indica**, *Baker* (**Ledebouria hyacinthoides**) and **Urginea indica**, *Kunth* (**Scilla indica**, *Roxb.*).

3. Since, however, considerable confusion exists regarding those two plants as drugs, the Central Committee would like to procure a few live bulbs of each form, *as recognised by Dr. Dobie*, so that these might be grown here in order to be botanically determined.

SQUILL: Madras.

APPENDIX XIX. B.

4. Scilla indica, *Baker*, is a very small plant, not more than a foot in height if so much, the leaves of which are often spotted like those of Orchis maculata. It occurs from Rajputana through Central India, the Central Provinces and Chutia Nagpur to the Deccan and the Madras Presidency. Records amongst others exist of its collection by Dr. King in Guna (Rajputana); by Mr. Maries in Gwalior (where it is called *Kore Khonda*); by Mr. Martin in Raipur; by the Rev. A. Campbell in Manbhoom, Chuttia Nagpur; by Dr. Gibson in the Deccan (where he tells us it is known as *Boee Kanda*); by Mr. Talbot in Karwar; and by Mr. Gamble in Nellore.

5. The other plant (Urginea indica, *Kunth*) is very much taller and stouter, being fully 18 inches in height, and has correspondingly larger bulbs. It is apparently by no means so widely distributed, and indeed may be said to occur mainly on the North-West Himalaya, the Salt Range, and the mountains of Behar, the Concan, Coromandel and Burma. It is, therefore, a sub-temperate species.

The bulbs of both plants appear, however, to be to some extent used medicinally and are procurable in most of the larger drug marts. It is accordingly desired to obtain direct personal opinion from local authorities as to the bulb held in most esteem and to have that cultivated in order to make quite certain of its identification. There are several other bulbs very similar to those of the two plants dealt with above, that might through ignorance be sold as Indian Squill or even wilfully used as adulterants. For example, the bulbs of Dipcadi unicolor, *Baker*, might easily enough be mistaken for those of Scilla indica. Should you be familiar with any spurious bulbs of the nature indicated, a few samples of each of these would be very acceptable, more especially if sent alive.

Apologising for the trouble this may occasion.

APPENDIX XIX. B.

No. $\frac{53}{1330}$, dated Madras, the 15th July 1897.

From—SURGEON-MAJOR J. A. CARRUTHERS, M.D., Acting Medical Store-keeper to Government, Madras Command, Madras,

To—The Honorary Secretary, Indigenous Drugs Committee, Calcutta.

With reference to your letter No. 30, of 23rd ultimo, which reached me some days ago, I have the honour to state that I have

SQUILL Madras.

this day secured some bulbs which, I am told, are similar to those Dr Dobie referred to, though I cannot certify to that fact.

2. These bulbs (Reg. No. 9691) are being sent to-day packed in moist sand and will, I trust, reach you safely.

Reg No. 9691. Conf. with p. 237.

3. I am trying to obtain a further supply from other quarters, and, on receipt, will forward them. While delighted to assist you in any way I can, I must plead guilty to not being a botanist, so that you must excuse any shortcomings.

APPENDIX XIX. C.

No. 36, dated the 11th August 1897.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Medical Store-keeper to Government, Madras Command, Madras.

In reply to your letter No. $\frac{52}{1333}$, dated the 15th July 1897, advising the despatch of Squills packed in a box with moist sand, I have the honour to report the safe arrival of the specimens. But I should be much obliged if you would kindly inform me whether the Squills sent by you are the same as those used in the Medical Stores.

APPENDIX XIX. D.

No. $\frac{25}{1909}$, dated Madras, the 24th August 1897.

From—SURGEON-MAJOR J. A. CARRUTHERS, M.D., Acting Medical Store-keeper to Government, Madras Command, Madras,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Indigenous Drugs Committee, Calcutta.

In forwarding the enclosed copy of letter No. $\frac{R.O.C.}{98}$, of 12th August 1897, from the District Forest Officer, Madura, relative to Squills and bulbs, I have the honour to state that it would be more advantageous with regard to your present enquiry regarding these plants to have direct communication with the officer in question, for, however much I may desire to help in this matter, I regret being unable to do anything more than refer to the Forest or other officers; I know the drugs when I see them, but am no botanist and know nothing of plants.

SQUILL: Madras.

APPENDIX XIX. E.

No. $\frac{R. O. C.}{08}$, dated the 12th August 1897.

From—The District Forest Officer, Madura,

To—The Medical Store-keeper to Government, Madras Command, Madras.

With reference to No. $\frac{52}{1374}$, dated 19th July 1897, I have the honour to state that I am having the bulbs collected, and that I have some young plants already sprouted, and should be obliged if you would let me know if you would like to have them at once. Bulbs will follow shortly.

APPENDIX XIX. E.

No. 41, dated the 10th September 1897.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Medical Store-keeper to Government, Madras Command, Madras.

I have the honour to acknowledge your letter No. $\frac{52}{190}$, dated 24th August, referring to the subject of Squills.

2. I agree with you that it would be best, in an enquiry of this sort, to obtain specimens from the geographical source of the drug, but in the first place I must satisfy myself about the character of the drug actually used in the Medical Stores before I can take steps to trace it to the plant. I thank you for referring me to the District Forest Officers of Chingleput and Madura who have supplied the bulbs.

3. With regard to the consignments advised in your letter dated 11th August, I am glad to say that they arrived in good condition and appear to be correctly named. I have, however, sent them to Dr. King, of the Botanic Gardens, who has promised to place their identity beyond all doubt when they have grown sufficiently.

APPENDIX XIX. F.

No. $\frac{52}{1736}$, dated Madras, the 11th August 1897.

From—SURGEON-MAJOR J. A. CARRUTHERS, M.D., Acting Medical Store-keeper to Government, Madras Command, Madras,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Indigenous Drugs Committee, Calcutta.

Reg. No. 9820.

I have the honour to advise the despatch of four live bulbs (Reg. No. 9820) of Squill, per passenger train this day.

TO PARAS. 67 (*f*), 79, 95 OF THE REPORT.

SQUILL Madras.

These were sent by the District Forest Officer, Chingleput, and are described by him as "**Urginea indica**" (Reg. No. 9820). He has promised to send also bulbs of "**Scilla indica,** *Baker.*"

I should be glad to know whether the lot I sent last time (Reg. No. 9691) arrived in good condition, and whether it belongs to the species "**Scilla.**" *Conf. with p. 235.*

Determination—9820 = Urginea indica. see p. 291.

No. 52/1987, dated Madras, the 27th August 1897.

From—SURGEON-MAJOR J. A. CARRUTHERS, M.D., Acting Medical Store-keeper to Government, Madras Command, Madras,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Indigenous Drugs Committee, Calcutta.

I have the honour to advise the despatch of 15 live bulbs of **Scilla** (Reg. No. 9948) per passenger train this day. The leaves of this species are spotted, and so I presume it is, according to your description, **Scilla indica,** *Baker.* *Reg. 99*

2. In reply to paragraph 2 of your letter No. 36 of 11th August 1897 I regret to say that I am not in a position to find out whence the Squills supplied to this depôt were obtained. Dr. Dobie drew from the Medical Store-keeper of Bombay, who may be able to give you some information. The Bombay supply was good. A local contractor offered some Squill last year which was rejected as quite worthless.

Determination—9948 = Scilla indica, see p. 289.

No. 37, dated the 11th August 1897.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Superintendent, Royal Botanic Gardens, Sibpur.

In continuation of this office No. 35, dated the 24th July 1897, I have the honour to forward herewith, for your acceptance, a small box containing Squills (Reg. No. 9691) received from Madras, and to request the favour of your growing them in the gardens with the object of determining their species. *Reg. No. 9691. Conf. with p. 235*

SQUILL
Madras.

APPENDIX XIX. I.

Demi-official No. 43, dated the 18th September 1897.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Superintendent, Royal Botanic Gardens, Sibpur.

Reg. Nos. 9820, 9948 Conf with pp. 236-37.

I beg to send herewith a few specimens of bulbs received from Madras, and to request you to be so good as to grow them in the Gardens with the object of their determination. The bulbs, No. 9948, were obtained from plants with spotted leaves, and were sent as those of **Scilla indica**, *Baker*.

Reg. No. 9820.
Reg. No. 9948.

Determination of 9948 = Scilla indica, see p. 289.
" 9820 = Urginea indica, see p. 291.

APPENDIX XIX. J.

No. 52/2093, dated Madras, the 3rd September 1897.

From—SURGEON-MAJOR J. A. CARRUTHERS, M.D., Medical Store-keeper to Government, Madras Command, Madras,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Indigenous Drugs Committee, Calcutta.

Reg. Nos. 10035, 10036.

I have the honour to send herewith copy of letter from the Forest Range Officer, Tanjore Range, regarding **Scilla,** which is called *Narivengayam* in Tamil.

2. The two varieties (Reg. Nos. 10035 and 10036) of bulbs forwarded by the Range Officer are despatched per passenger train this day.

Determinations of 10035 = Scilla indica, see p. 289.
" 10036 = Scilla indica, see p. 291.

Reference on current No. 49, dated the 22nd August 1897.

From—The Forest Range Officer, Tanjore Range,

To—The District Forest Officer, Tanjore.

With reference to your endorsement on C. No. 10/10397 directing to send some *Narivengayam*, I beg to state that I have submitted the same. This is the only species known in Tranquebar and its suburbs as *Narivengayam*. No other species is found available. This was found in Marudamballam and in Anaikoil near Tranquebar. As they say that it is not the season for it, larger ones were not procurable. This is generally grown in patches on sandy soil in plains.

This is the only species used by *Hakims* or *Vaidyas* of these parts in preparing *Bhasmams*.

TO PARAS. 67 (*f*), 79, 95 OF THE REPORT. SQUILL Madras.

No. $\frac{52}{2820}$, dated Madras, the 20th October 1897.

From—SURGEON-MAJOR J. A. CARRUTHERS, M.D., Medical Store-keeper to Government, Madras Command, Madras,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Indigenous Drugs Committee, Calcutta.

I have the honour to advise the despatch of two more varieties (Reg. Nos. 10111 and 10112) of Scilla by passenger train to-day. *Reg. Nos. 10111, 10112.*

Determination of 10111 = Urginea indica, see p. 289.

APPENDIX XIX. L.

No. 58, dated the 19th November 1897.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Superintendent, Royal Botanic Gardens, Sibpur.

I have the honour to forward herewith two consignments of live tubers (Reg. Nos. 10035, 10036; 10111 and 10112) received from the District of Tanjore, Madras, through the Medical Store-keeper to Government, Madras Command, in connection with the enquiry into the medicinal products known as Squills, for favour of your cultivating the same in the Gardens with a view to their determination. *Reg. Nos. 10035, 10036, 10111, 10112.*

The favour of an acknowledgment would oblige.

APPENDIX XIX. M.

No. $\frac{52}{3902}$, dated Madras, the 17th December 1897.

From—SURGEON-MAJOR J. A. CARRUTHERS, M.D., Medical Store-keeper to Government, Madras Command, Madras,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Indigenous Drugs Committee, Calcutta.

I have the honour to advise the despatch of 6 bulbs of Scilla (Reg. No. 10256) received from the District Forest Officer, South Arcot. *Reg. No. 10256.*

A copy of his letter is annexed for your information (*below.*)

APPENDIX XIX. O.

Reference on current No. 888, dated the 30th November 1897.

From—The District Forest Officer, South Arcot,

To—The Medical Store-keeper to Government, Madras Command, Madras.

With reference to your letter No. $\frac{52}{1375}$, dated the 19th July 1897.

SQUILL : Madras.

APPENDIX XIX. O.

I have the honour to despatch by rail 12 bulbs of *Narivengayam*. It is also called *Kantha kilanga* and said to be medicinally used in cattle-diseases, especially in a disease known as "*Kamari.*" A further collection of the specimen is awaited from Range Officer which will be despatched on receipt; and additional information available will also be rendered.

APPENDIX XIX. N.

No. 64, dated the 6th January 1897.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Superintendent, Royal Botanic Gardens, Sibpur.

Reg. No. 10256

I have the honour to forward 5 bulbs of Squills (Reg. No. 10256) received from South Arcot, Madras. I should be pleased if you would kindly have them planted, with a view to the identification of the plant.

APPENDIX XIX. O.

No. 32, dated the 23rd June 1897.

Bombay.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—Surgeon-Lieut.-Col. J. Parker, M.D., Medical Store-keeper to Government, Bombay Command, Bombay.

I desire to forward, for your information, copy of a letter that has been addressed by me to Medical Store-keeper to Government, Madras Command, on the subject of Indian Squill. I would explain that it is desired to obtain small samples of the bulbs used by you more especially if live ones can be procured that would admit of their being cultivated and examined botanically.

2. I would invite your attention to a passage in your interesting contribution (published in the Appendix to the Committee's Report, page 152) on the above subject. The Committee would be obliged if you could not only furnish live bulbs of the **Scilla indica** to which you more especially allude, but also of the substitutes mentioned in the paragraph in question. I would point out that some little obscurity seems to exist in the sentence: "The bulbs growing with the

Conf. with p. 152

Scilla indica are oblong, etc., etc." Is it correct to infer that in the localities where **Scilla indica** occurs, there also is found spurious bulbs in addition to the spurious bulbs subsequently mentioned as being obtained from the hills? If that be so, the Committee would be greatly obliged if you could furnish live bulbs of all the spurious forms known to you in addition to bulbs of the true **Scilla indica.**

APPENDIX XIX. P.

No. $\frac{G.}{4775}$, dated Bombay, the 10th July 1897.

From—SURGEON-LIEUT.-COL. J. PARKER, M.D., Medical Store-keeper to Government, Bombay Command, Bombay,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Indigenous Drugs Committee, Indian Museum, Calcutta.

With reference to your No. 32 of 23rd ultimo, I have the honour to state that I have despatched to your address, to-day, by passenger train, 4 boxes containing four specimens marked 1, 2, 3 and 4.

No. 1 (Reg. No. 9660) is a sample of Squills formerly used at the Bombay Medical Stores (in lieu of the imported article) and procured from near Vehar Lake outside Bombay. This form of squills is liable to be offered in the market as true Squills. *Reg. No. 9660.*

No. 2 (Reg. No. 9661) is the Squill now used at the Bombay Depôt. The sample has been obtained from the sandy shore near Bombay, and may or may not include the spurious form sometimes found growing with it. A sample of the spurious form will be forwarded later on, probably in October. *Reg. No. 9661.*

No. 3 (Reg. No. 9662) is a sample of bulbs believed to be **Crinum zeylanicum,** *Pharmacographia Indica*, Volume III, page 466. The specimen has been obtained from the hills in the neighbourhood of the Vehar Lake near Bombay. This bulb is liable to be dried, cut up and sold as true Squills. *Reg. No. 9662.*

No. 4 is believed to be a specimen of **Crinum asiaticum** obtained from Garden Land near Bombay. This is sometimes confused by natives with No. 3, and so may be offered for sale as genuine Squills. *Reg. No. 9662 (a).*

Determinations 9660 = Pancratium triflorum (is not a squill), see p. 290.

" 9661 = Urginea indica, see p. 291.

" 9662 = Crinum latifolium var. moluccanum, see p. 290.

" 9662(a) = Crinum asiaticum, see p. 291.

SQUILL:
Bombay.

APPENDIX XIX. Q.

No. 35, dated the 24th July 1897.

From—The Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Superinterdent, Royal Botanic Gardens, Sibpur.

Names under which Received.

No. 1. **Urginea indica** (Reg. No. 9660), formerly used in Medical Stores.

No. 2. **Ledebouria hyacinthoides** (Reg. No. 9661), now used in Medical Stores.

No. 3. **Crinum zeylanicum** (Reg. No. 9662).

No. 4. **Crinum asiaticum** (Reg. No. 9662 (a.)

I have the honour to send herewith, for your acceptance, the marginally noted bulbs for the purpose of being grown in the Gardens. These have been procured form Bombay in conse quence of a conversation with Dr. Prain who expressed a desire to look into the subject of the medicinal plants sold as Squills.

Determinations, see above.

[*The subject of Squills will be found to be continued, pages 289-91, and to be reviewed in para. 95.*]

APPENDIX XX. A. TO PARA. 67 (*g*) OF THE REPORT.

SECTION (*g*).—***Communications on Pogostemon plectranthoides.***

No. 29, dated the 23rd June 1897.

From—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—SURGEON-LIEUT.-COL. J. PARKER, Medical Store-keeper to Government, Bombay Command, Bombay.

I am engaged revising the proofs of the Report of the Central Committee Indigenous Drugs preparatory to its being issued to Local Committees. The passage in your contribution (page 52 of appended proof) struck me as being curiously interesting. Being aware that Dr. Prain had devoted considerable attention to the subject of the species of **Pogostemon,** more especially the source of the perfume known as Patchouli, I referred the question to him of the name **Pogostemon parviflorus** being correct. The result was that Dr. Prain very kindly went over all the collections in the Calcutta Herbarium along with me and we found as follows:—

(*a*) **Pogostemon parviflorus** may be regarded as distributed throughout India, Indo-China and Malaya. Botanically speaking it might be viewed as the origin of the cultivated **P. suavis,** *Tenore,* the Malayan Patchouli of European commerce.

(*b*) **P. plectranthoides** (a much more plentiful plant where met with than **P. parviflorus**) was sent to the Herbarium from Poona by a Native collector under the vernacular name "*Phangal*", the name given by you to **P. parviflorus.**

(*c*) **P. purpurascens** is also another species frequent in the Deccan which seems even more likely than either of the above to be used medicinally. It is a very striking species and has the somewhat remarkable distribution of reappearing in Manipur where it was collected by me in 1882, while it nowhere occurs in the vast expanse of the tableland of India that lies between the Deccan and Manipur.

2. Dr. Prain has suggested that before any steps are taken on the passage of your report (to which I allude above), it might be desirable that you should furnish me with a sample of your "*Phangala.*" The three plants above are so very nearly allied that they have been greatly confused by collectors and even by several systematic botanists. It

is

APPENDIX XX. A.

you can comply with this suggestion, I shall be greatly pleased to lay the result of this enquiry before the Central Committee.

APPENDIX XX. B.

No. $\frac{G.}{4778}$, dated Bombay, the 10th July 1897.

From—SURGEON-LIEUT.-COL. J. PARKER, M.D., Medical Store-keeper to Government, Bombay Command, Bombay,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Indigenous Drugs Committee, Indian Museum, Calcutta.

I have the honour to inform you that the "*Phangala*" asked for in your No. 29 of 23rd ultimo, 2nd paragraph, is being collected and will be forwarded as soon as possible.

APPENDIX XX. C.

No. $\frac{I}{5101}$, dated Bombay, the 27th July 1897.

From—SURGEON-LIEUT.-COL. J. PARKER, M.D., Medical Store-keeper to Government, Bombay Command, Bombay,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Indigenous Drugs Committee, Indian Museum, Calcutta.

In continuation of my No. $\frac{G.}{4778}$ of 10th instant, I have the honour to
App. No. 9734. advise the despatch this day to your address by passenger train of a basket containing fresh samples of "*Phangala*", (Reg. No. 9734).

APPENDIX XX. D.

No. 115-H., dated Calcutta, the 14th August 1897.

From—GEORGE KING, Esq., M.B., LL.D., F.R.S., C.I.E., Superintendent, Royal Botanic Gardens, Calcutta,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Indian Museum, Calcutta.

I have the honour to acknowledge with many thanks the receipt of your letter No. 38, dated 11th instant, and of the specimen of "*Phangala*" (which you received in a decomposed state) forwarded therewith for growing in this garden for the purpose of identification of the species. Dr. Prain believes it to be **Pogostemon plectranthoides,** *Desf.* A further communication will be sent to you hereafter on the subject if the plants can be grown here.

APPENDIX XX. E.

No. 12-H., dated Calcutta, the 24th January 1898.

From—SIR GEORGE KING, K.C.I.E., M.B., LL.D., F.R.S., Superintendent, Royal Botanic Gardens, Calcutta,

To—The Honorary Secretary, Indigenous Drugs Committee, Office of Reporter on Economic Products, Indian Museum, Calcutta.

With reference to your No. 38, dated 11th August 1897, forwarding roots of a Labiate (Reg. No. 9734) for cultivation and determination, I have the honour to inform you that the plant has now flowered and proves to be **Pogostemon plectranthoides**, *Desf.* The leaves do not have any Patchouli smell. *Conf. with App., p. 158, Reg. No. 9731.*

APPENDIX XX. F.

No. 73, dated Calcutta, the 4th February 1898.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—SURGEON-LIEUT.-COL. J. PARKER, M.D., Medical Storekeeper to Government, Bombay Command, Bombay.

With reference to your No. $\frac{G}{5161}$, dated 27th July 1897, in which you advised despatch of live specimens of *Phangala*, I have the honour to say that the plant has now flowered at the Botanic Gardens, and Sir George King informs me that it proves to be **Pogostemon plectranthoides**, *Desf.* With your permission therefore, I propose to change the name **P. parviflorus** into **P. plectranthoides** as given in the list of Bombay drugs that accompanied your letter No. G. 2588, dated 21st April 1896, and which will be found in the Appendix XI., p. 158, to the Central Committee's Report.

APPENDIX XX. G.

No. $\frac{G}{969}$, dated Bombay, the 10th February 1898.

From—SURGEON-LIEUT.-COL. J. BARKER, M.D., Medical Storekeeper to Government, Bombay Command, and President, Bombay Local Indigenous Drugs Committee, Bombay,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Indian Museum, 1, Sudder Street, Calcutta.

I have the honour to acknowledge the receipt of your No. 73, dated 4th instant, stating that the *Phangala* supplied by me is

THEVETIA

APPENDIX XX. G.

Pogostemon plectranthoides and not **P. parviflorus** as originally supposed, and to request the favour of your altering the record referred to accordingly.

APPENDIX XX. H.

Communications on Thevetia neriifolia.

Supply of Seeds in connection with para. 54

Thevetia neriifolia

Letter to Director, Agriculture, Bengal, No 237, dated 27th January 1897: supply obtained insufficient and unsatisfactory. Second indent No 119, dated 28th June 1898.

Supply ultimately collected by Mr. D Hooper, Officiating Reporter on Economic Products.

APPENDIX XX. I.

No $\frac{4}{XVI}$ E. S., dated Calcutta, the 29th December 1898.

From—The Reporter on Economic Products to the Government of India,

To—Sir Frederick A Abel, Bart, K C B., Honorary Secretary and Director, Imperial Institute,

In connection with the arrangements made with Professor Dunstan to analyse the kernels of **Thevetia neriifolia,** I have the honour to inform you that fresh seeds were collected by me at Khulna Bengal during my recent exploration. These seeds (Registration No 11493) have been forwarded under cover of Invoice No 36 of 1898, and I am to request the favour of your asking Professor Dunstan to undertake the examination of the seeds in question, with a view to ascertain their chemical composition and physiological properties connected with the enquiry on the Indigenous Drugs of India, No 85 of the Programme of Collections for 1898-99

APPENDIX XXI. A. TO PARA. 65.

APPOINTMENTS.

Communications on Local Committees (Appointments).

No 87, dated the 20th April 1898.

Conf with Appendices XIII. A XII.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Central Indigenous Drugs Committee,

To—The Under-Secretary to the Government of India, Home (Medical) Department, Simla.

The Government of India by its Resolution No $\frac{24 \text{ Medical}}{173}$, dated the 31st October 1895, did me the honour to appoint me a member of the Central Indigenous Drugs Committee. Owing to the fact that I have been permitted to avail myself of furlough for a period of eight months from the beginning of May next, I am accordingly under the necessity to desire you to obtain the sanction of the Government of India for my being permitted to temporarily resign my seat on the Central Committee.

2. At the meeting of the Central Committee held on the 15th instant I mentioned this circumstance, as also that I had not as yet been notified of any person having been appointed in the room of Surgeon-Lieutenant-Colonel C. J. H. Warden, presently on furlough. There are or will very shortly in consequence be two vacancies on the Central Committee, and I am accordingly directed by the President to submit, for the consideration of the Government of India, the following extract from the Proceedings of the last meeting of the Committee:

"The question of the selection of an Honorary Secretary was discussed when it was unanimously agreed that in order to preserve continuity of work it was highly desirable that the Officiating Reporter on Economic Products should, if possible, be appointed a member of Committee and Honorary Secretary. It was accordingly resolved that Dr. Watt in announcing to the Government of India in the Home Department the vacancy that would be caused by his proceeding on furlough, should take the opportunity of conveying the above recommendation for the favourable consideration of the Government of India."

I may venture to add to the above that I understand Mr. David Hooper has been selected by the Revenue and Agricultural Department of the Government of India to act as Officiating Reporter on Economic Products.

Should the Government of India be unable to reply to this letter prior to the date of my departure from India, I am to add in

APPENDIX XXI. A.

conclusion that your answer might in that case be addressed to the President, Brigade-Surgeon-Lieutenant Colonel E. G. Russell.

APPENDIX XXI. B.

No. 611, dated Simla, the 13th May 1898.

From—R. NATHAN, Esq., Under-Secretary to the Government of India, Home Department,

To—BRIGADE-SURGEON-LIEUT.-COL. E. G. RUSSELL, M.B., President of the Central Indigenous Drugs Committee, Calcutta.

Mr. Hooper's Appointment.

I am directed to state that the Government of India have been pleased to appoint Mr. D. Hooper, Officiating Reporter on Economic Products to the Government of India, to be a member of the Central Indigenous Drugs Committee in place of Dr. G. Watt, C.I.E., during the absence of the latter on furlough.

APPENDIX XXI. C.

No. 138, dated the 13th August 1898.

From—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India,

To—The Secretary to the Government of India, Home Department.

Dr. Warden's Furlough.

I am directed by the Central Indigenous Drugs Committee to intimate that Surgeon-Lieutenant-Colonel C. J. H. Warden has proceeded on furlough for two years, and that it is desirable that a successor be appointed at an early date.

Dr. Bomford's Furlough.

I also have the honour to inform you that Surgeon-Lieutenant-Colonel G. Bomford's departure on furlough for one year has created a vacancy in the Bengal Committee, and I am accordingly requested to ask the Government of India to approach the Government of Bengal with the object of appointing a new member.

APPENDIX XXI. D.

No. 1193, dated Simla, the 1st September 1898.

From—R. NATHAN, Esq., Under-Secretary to the Government of India, Home Department,

To—The President of the Central Indigenous Drugs Committee, Calcutta.

I am directed to state that the Government of India have

been pleased to appoint Lieutenant-Colonel D. P. Macdonald, M.D., Officiating Medical Store-keeper to Government, Bengal Command, to be a member of the Central Indigenous Drugs Committee, in place of Surgeon-Lieutenant-Colonel C. J. H. Warden, during the absence of the latter on furlough. Dr. Macdonald's Appointment.

2. With reference to paragraph 2 of Mr. Hooper's letter No. 138, dated the 13th ultimo, I am to say that the Government of Bengal has been asked to take the necessary steps to fill up the vacancy in the Local Committee caused by the departure on furlough of Surgeon-Lieutenant-Colonel G. Bomford.

APPENDIX XXI. E.

No. 168-I. D. C., dated the 9th September 1898.

From—D. HOOPER, Esq., Honorary Secretary, Indigenous Drugs Committee,

To—SURGEON-LIEUT.-COL. D. P. MACDONALD, M.D., Officiating Medical Store-keeper to Government, Bengal Command.

I am directed to forward herewith, for your information, an extract from a letter, No. 1193, dated the 1st September 1898, from the Under-Secretary to the Government of India, Home Department, Simla, regarding your appointment as a member of the Central Indigenous Drugs Committee.

APPENDIX XXI. F.

No. 39-I. D. C., dated the 8th April 1899.

From—LIEUT.-COL. E. G. RUSSELL, M.B., B.Sc., I.M.S., President, Indigenous Drugs Committee,

To—The Under-Secretary to the Government of India, Home (Medical) Department, Simla.

In continuation of the correspondence ending with your letter No. 611, dated the 13th May 1898, I have the honour to inform you that Dr. George Watt, M.B., C.M., C.I.E., took over charge of the duties of the Honorary Secretary, Central Indigenous Drugs Committee, on the 20th January 1899.

APPOINTMENTS.

APPENDIX XXI. G. TO PARA. 83.

No. 137 C M., dated the 21st September 1898.

From—E. N. BAKER, Esq , C S , Officiating Secretary to the Government of Bengal, Municipal Department, Medical Branch, Darjeeling,

To—The Secretary to the Government of India, Home Department

With reference to your letter No 1192, dated the 1st September 1898, I am directed to submit that, in accordance with the recommendation of the Inspector-General of Civil Hospitals, the Lieutenant-Governor is pleased to appoint in the place of Surgeon Lieutenant-Colonel G Bomford, on furlough, Surgeon-Major G. F. A. Harris, Officiating Principal of the Medical College Calcutta, to be the President of the Committee formed in Bengal to assist the Indian Indigenous Drugs Central Committee in their investigations.

ADHATODA VASICA; PICRORHIZA KURROOA and PODOPHYLLUM EMODI.

APPENDIX XXII. A. TO PARAS. 67, 75, 78 AND 85 OF THE REPORT.

Correspondence on First Batch of Selected Drugs *(pp. 251-75).*

No. 108, dated the 24th June 1898.

From—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India,

To—The Medical Store-keeper, Bengal Command, Calcutta.

I have the honour to draw your attention to the "Report and Appendix of the Proceedings of the Central Indigenous Drugs Committee up to July 1897," in which you will see that steps have been taken to supply preparations of certain Indian drugs for therapeutic trials in various hospitals and dispensaries.

2. On page 30 of the Report it is seen that the following five drugs are to be taken up first:—

Podophyllum—root (Panjab).
Calotropis—root-bark (North-West Provinces).
Picrorhiza—rhizome (Kashmir).
Alstonia—bark (Bengal Sibpur).
Adhatoda—leaves and root (Bengal).

On pages 179-81 and 183 of the Appendix the preparations of these drugs are recorded for guidance. It is required that the **Picrorhiza** root be made into a tincture of the strength of 2½ ounces to the pint, and that the **Adhatoda** leaves be similarly prepared. With regard to **Adhatoda** it was first proposed that the root only should be employed, but at the meeting held on 15th April it was decided to make the tincture from the leaves also.

3. I find that 1 maund of **Picrorhiza** root was supplied to you on the 17th March 1898 (Reg. No. 10365), and 1 maund of **Adhatoda** leaves on 4th February 1898 (Reg. No. 10329) I should be pleased to know if the tinctures have been prepared from these products and if they are ready for distribution.

4. I have the honour to inform you that a supply of **Alstonia** bark is being dried by this Department and will be forwarded to you in the course of a week or so.

APPENDIX XXII. A.

Communications on Adhatoda Vasica and Picrorhiza Kurrooa.

No. 644, dated Calcutta, the 29th June 1898.

From—The Medical Store-keeper to Government, Bengal Command, Calcutta,

To—The Officiating Reporter on Economic Products to the Government of India, Calcutta.

With reference to your letter No. 108, dated the 24th instant, I have the honour to report as follows:—

The **Picrorhiza** rhizomes and **Adhatoda** leaves were duly received in this Department; but the instructions left by Surgeon-Lieutenant-Colonel Warden were that the alkaloid vasicine was to be extracted from the **Adhatoda** leaves, and it was understood that a tincture of this drug was not required. Acting under these instructions we are at present operating on a 13-pound parcel of the leaves, with the view of obtaining the alkaloid, though we have not yet gone beyond the point of distilling off the spirit from the fluid extract, so that it is possible to convert this extract into tincture, and I shall be obliged by your kindly informing me whether the alkaloid is to be prepared or the tincture.

2. **Picrorhiza** rhizome is, I understand, a substitute for Gentian, and in making it into tincture of the strength of 2½ ounce to the pint, you have omitted to say whether a simple tincture is required or whether the orange peel and cardamom present in tincture of Gentian are to be added also to this tincture.

APPENDIX XXII. B.

No. 115, dated the 6th July 1898.

From—D. Hooper, Esq., Officiating Reporter on Economic Products to the Government of India,

To—The Medical Store-keeper to Government, Bengal Command, Calcutta.

With reference to your letter No. 644, dated the 29th June 1898, I am directed to inform you that the Central Indigenous Drugs Committee would be pleased to know the result of the experiment you are now conducting in extracting the alkaloid from 13lb of the

leaves of **Adhatoda Vasica.** At the same time the Committee think it desirable that the balance of leaves be used in the preparation of a tincture of the strength of 2½ ounces to a pint as originally intended.

2. With regard to the tincture of **Picrorhiza** and all other tinctures it is understood that they are to be simple preparations of the drugs without the addition of flavouring or colouring agents.

APPENDIX XXII. C.

No. 705, dated Calcutta, the 21st July 1898.

From—The Medical Store-keeper to Government, Bengal Command, Calcutta,

To—The Officiating Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Calcutta.

In continuation of this office No. 644, dated 29th June, 1898, I have the honour to report that I have now prepared, for the use of the Committee, 300lb each of tincture **Adhatoda** and tincture **Picrorhiza** and am awaiting instructions for their distribution.

In regard to the alkaloid vasicine, I regret to report that the experiments conducted for its isolation have not proved very successful. The alkaloid obtained is very small in quantity, and is so contaminated with oily extractive and vegetable colouring matter as to be practically unfit for clinical trial. The process followed for its elimination was that described for the estimation of the alkaloid on page 11 of the Hand-book of Commercial Products (No. 10 **Adhatoda Vasica**). Of the stock of **Picrorhiza** rhizomes and **Adhatoda Vasica** leaves originally supplied to this depôt, 28lb of the former and 34lb 7 oz. of the latter is now left, instructions for the disposal of which is requested.

APPENDIX XXII. D.

No. 123, dated the 23rd July 1898.

From—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India,

To—The Medical Store-keeper to Government, Bengal Command, Calcutta.

In reply to your letter No. 795, dated 21st instant, regarding the disposal of the 300lb of tincture of **Adhatoda Vasica** and

APPENDIX XXII. D.

Picrorhiza Kurrooa, I have the honour to request you to despatch two gallons of each to the undernoted Medical Officers:—

The Honorary Secretary, Indigenous Drugs Committee—

for Bengal, Medical College, Calcutta.

„ Bombay, Medical Store Department, Bombay.

„ Madras, Medical College, Madras,

„ Panjab Surgeon-Captain W. D. Sutherland, Medical College, Lahore.

„ Assam, Surgeon-Lieut.-Colonel R. N. Campbell, Shillong.

„ Burma, Surgeon-Lieut.-Colonel G. T. Thomas, Rangoon.

„ Central Provinces, Surgeon-Major H. E. Banatvala, Betul, Central Provinces.

„ North-West Provinces, Assistant Surgeon E. Thomas, Medical College, Agra.

A letter is being forwarded to all the Local Secretaries to invite them to institute therapeutic tests with the tinctures in the manner suggested on pages 73 to 89 of the Report and Appendix of the proceedings of the Central Indigenous Drugs Committee, 1897.

,, 179 97 of this Report.

With regard to the crude alkaloid obtained from the experimental treatment of **Adhatoda** leaves, I should be obliged if you would send it, as it is, for analysis and purification in the Museum Laboratory.

Surplus stock.

I should be obliged if you would store the balance of the **Picrorhiza** RHIZOMES and **Adhatoda** LEAVES, as well as the TINCTURES, until I have ascertained from the Local Committees the further quantities of these preparations that may be required.

APPENDIX XXII. E.

No. 825, dated Calcutta, the 26th July 1898.

From—The Medical Store-keeper to Government, Bengal Command, Calcutta,

To—The Officiating Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Calcutta.

As requested in paragraph 3 of your No. 123, dated the 23rd instant, I have the honour to forward herewith the crude alkaloid obtained from the experimental treatment of **Adhatoda** leaves.

Nos. 139—146, dated the 16th August 1898.

From—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, Calcutta, Conf. with pp. 261, 268, 354.

To—All Honorary Secretaries, Local Indigenous Drugs Committees.

I have the honour to forward by parcel post 25 copies of the "Report and Appendix of the Proceedings of the Central Indigenous Drugs Committee up to April 1898." I shall be obliged if you will circulate these among the members of your Committee, and acquaint me with any further information or suggestion you may desire to offer with regard to the use of indigenous drugs in your province. Report brought up to April 1898.

2. I am also requested to inform you that tinctures of **Adhatoda** leaves and **Picrorhiza** rhizomes have been prepared by the Medical Store-keeper, Calcutta, and 2 gallons of each will shortly be despatched to your address. I am to invite you to institute therapeutic tests with these preparations and record the results in the forms supplied to you last September. As a general rule, **Adhatoda** is recommended to be treated as expectorant and **Picrorhiza** as antiperiodic and febrifuge. Recommended as Expectorant, Antiperiodic and Febrifuge.

3. The Medical Store-keeper will also supply you with one ounce of Indian Podophyllin which the Central Committee desire to be tried as a substitute for the ordinary Podophyllum resin made from the American root. [To all Committees *excepting Bombay* and *Calcutta.*]

The Central Committee wish it to be understood that the selection of the hospitals and dispensaries to which it may be decided to send the preparations for trial and report is left to the Local Committees. In order that there may be no unnecessary delay and at the same time to allow sufficient opportunity for a definite opinion to be expressed on the action of the drugs, the 1st April 1899 has been fixed upon as a suitable date for the submission of reports. Hospitals. Conf. with pp. 297-300, 354.

Twenty-five copies of the Indigenous Drugs Report sent to the undernoted persons :—

No. 139, dated 16th August 1898.	Honorary Secretary, Local Indigenous Drugs Committee, Medical College, Calcutta.
„ 140 „ „ „ .	Honorary Secretary, Local Indigenous Drugs Committee, North-West Provinces and Oudh, Agra.

APPENDIX XXII. F.

No. 141, dated 16th August 1898 .	Honorary Secretary, Local Indigenous Drugs Committee, Panjab, Lahore.
" 142 " " " .	Honorary Secretary, Local Indigenous Drugs Committee, Assam, Shillong.
" 143 " " " .	Honorary Secretary, Local Indigenous Drugs Committee, Central Provinces, Betul.
" 144 " " " .	Honorary Secretary, Local Indigenous Drugs Committee, Burma, Rangoon.
" 145 " " " .	Honorary Secretary, Local Indigenous Drugs Committee, Bombay.
" 146 " " " .	Honorary Secretary, Local Indigenous Drugs Committee, Madras.

APPENDIX XXII. G.

No. 158-I. D. C., dated the 26th August 1898.

From—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—The Medical Store-keeper to Government, Bengal Command, Calcutta.

In continuation of this office No. 123, dated 23rd July 1898, I have the honour to enquire whether the distribution of the tinctures prepared from **Adhatoda Vasica** leaves and **Picrorhiza Kurrooa** rhizomes, as indicated therein, has now been completed. I would also be much obliged if you will kindly let me know whether there is any objection to your Department undertaking the further distribution of tinctures and other pharmaceutical preparations on behalf of the Central Indigenous Drugs Committee.

I may say that the preparation and despatching of the drugs will be necessary at irregular intervals and the work is never likely to assume large proportions.

No. 1056, dated Calcutta, the 30th August 1898.

From—The Medical Store-keeper to Government, Bengal Command, Calcutta,

To—The Officiating Reporter on Economic Products to the Government of India, Calcutta.

In reply to your No. 158-I. D. C, dated the 26th instant, I have the honour to state that the distribution of the tinctures prepared

from **Adhatoda Vasica** leaves and **Picrorhiza Kurrooa** rhizomes has been completed, and there is now left in stock 120lb of each, for the disposal of which orders are requested.

There is no objection to this Department undertaking the further distribution of tinctures and other pharmaceutical preparations on behalf of the Central Indigenous Drugs Committee provided the work does not assume large proportions.

No. 171-I. D. C, dated the 20th September 1898.

From—The Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—The Medical Store-keeper to Government, Bengal Command, Calcutta.

With reference to the concluding sentence of paragraph 1 of your letter No. 1056, dated the 30th August 1898, I am directed to ask the favour of your being so good as to keep the tinctures in stock to meet any further indents from the Local Committees of Indigenous Drugs, who are now engaged in investigating the action of the preparations.

APPENDIX XXII. II.

No. 173, dated the 28th September 1898.

From—The Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—The Chief Medical Officer, Kashmir, Srinagar.

With reference to the correspondence ending with this office letter No. 77-I. D. C., dated the 19th March 1898, I am directed to ask the favour of your being so good as to quote the price of furnishing this office with one maund of the roots of **Picrorhiza Kurrooa**. The information in question is urgently required for the Medical Store Department, Calcutta. A reply at an early date will greatly oblige.

No. 790, dated the 4th October 1898.

From—Dr. A. Mitra, R.B., Chief Medical Officer, Kashmir.

To—The Officiating Reporter on Economic Products to the Government of India, Calcutta.

In reply to your office No. 173-I. D. C., dated 29th ultimo, I have

the honour to inform you that the cost of furnishing you with one maund of the roots of **Picrorhiza Kurrooa** was as follows :—

	R	a.	p.
Price of Picrorhiza Kurrooa	7	0	0
Railway freight for ditto from Srinagar to Calcutta	9	13	0
Packing charges	0	7	0
TOTAL . .	17	4	0

APPENDIX XXII. J. TO PARAS. 67 (*d*), 75, 78 (*d*) AND 85 OF THE REPORT.

Communications on Alstonia scholaris.

No. 198 M., dated Calcutta, the 27th May 1898.

From—The Superintendent, Royal Botanic Garden, Sibpur, Calcutta,

To—The Officiating Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Calcutta.

In compliance with a request preferred by Dr Watt as Honorary Secretary to the Indigenous Drugs Committee, I beg to send herewith a couple of boxes containing rather more than a maund of the bark of Alstonia scholaris (Reg No 10779) for experimenta purposes Dr. Watt wished the bark sent to your office as harvested as you can easily arrange them to have it dried.

No. 105, dated the 7th June 1898.

From—The Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—The Superintendent, Royal Botanic Garden, Sibpur, Calcutta.

I have the honour to acknowledge the receipt of two boxes containing the green bark of Alstonia scholaris (Reg. No. 10779) forwarded with your letter No. 198 M., dated 27th May 1898. The bark is being dried in the sun and has already lost 50 per cent of its weight. As one maund of the dry bark is required for the prescribed amount of tinctures to be made at the Medical Stores, I am to ask if you are able to supply a further quantity of the bark or shall I try and obtain it elsewhere.

No. 237 M, dated Calcutta, the 30th June 1898.

From—The Superintendent, Royal Botanic Garden, Sibpur, Calcutta,

To—The Honorary Secretary, Indigenous Drugs Committee, Calcutta.

With reference to your letter No. 111, dated 28th instant, I have the honour to forward herewith 22 seers or 44℔ of the green bark of Alstonia scholaris as requested in your above-quoted letter (Reg. No. 10779, 2nd consignment).

The favour of an acknowledgment of the receipt is requested.

APPENDIX XXII. J.

No. 131, dated the 3rd August 1898.

From—G. WATT, Esq., M.B., C.M., C.I.E., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Medical Store-keeper to Government, Bengal Command, Calcutta.

I have the honour to send herewith 42lb of the bark **Alstonia scholaris** (Reg. No. 10779), and to request the favour of your being so good as to prepare for experimental purposes, in connection with the indigenous drugs of India, a tincture from the bark.

No. 1004, dated Calcutta, the 20th August 1898.

From—The Medical Store-keeper to Government, Bengal Command, Calcutta,

To—The Honorary Secretary, Indigenous Drugs Committee, Calcutta.

I have the honour to report that I have got 340lb of tincture **Alstonia scholaris** now ready at this depôt for distribution, and I am awaiting your instructions as to its disposal.

No. 148, dated the 22nd August 1898.

From—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—The Medical Store-keeper to Government, Bengal Command, Calcutta.

With reference to your letter No. 1004, dated the 20th instant, I have the honour to state that the tincture of **Alstonia scholaris** is for the Local Indigenous Drugs Committees, and the Central Committee would be obliged if you would kindly distribute 2 gallons of the tincture to each of the Honorary Secretaries mentioned in my letter No. 123 of the 23rd ultimo.

I would also point out that the local Honorary Secretary of the Bengal Committee should be addressed at the Medical College and not at this office.

The usual letter of advice with regard to the tinctures will be despatched to all the Provincial Committees during the course of this week.

TO PARAS. 67 (*d*), 75, 78 (*d*) AND 85 OF THE REPORT. ALSTONIA.

Nos. 150—157-I. D. C., dated the 26th August 1898.

From—D^r. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—The Secretaries, Local Indigenous Drugs Committee.

Conf. with pp. 255, 248, 254.

In continuation of this office letter No. 139-146, dated the 16th August, I have the honour to inform you that a tincture has been prepared from **Alstonia scholaris** bark by the Medical Store-keeper to Government, Bengal Command, and will very shortly be despatched to your address. I am to request you to be so good as to institute therapeutic tests with the preparation, and record the results in the forms already forwarded to you for that purpose. As a general rule, **Alstonia scholaris** is recommended as an antiperiodic and febrifuge.

I may add that the remarks contained in paragraph 3 of this office letter quoted above regarding the submission of reports and other details, are equally intended to apply to this experiment.

No. 1366, dated Calcutta, the 13th October 1898.

From—The Medical Store-keeper to Government, Bengal Command, Calcutta,

To—The Officiating Reporter on Economic Products to the Government of India, Calcutta.

Please ascertain the rate of "**Alstonia scholaris**—CORTEX" required for the preparation of its tincture at this depôt, and let me know this at your early convenience, as the information is required by the Examiner of Commissariat Accounts, Bengal Command, to enable him to arrive at a stock book rate of the compound manufactured.

No. 189-I. D. C., dated the 15th October 1898.

From—The Officiating Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Medical Store-keeper to Government, Bengal Command, Calcutta.

In reply to the enquiry contained in your letter No. 1366, dated the 13th current, I have the honour to inform you that the approximate price of the 4 lb of bark of **Alstonia scholaris** is R4.

APPENDIX XXIII. A.

Communications on Calotropis gigantea and procera.

Conf. with Report, pp. 8, 9, 11, 37, 46, 51, 55, 61.

No. 95, dated the 4th May 1898.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Director, Department of Land Records and Agriculture, Bengal.

In continuation of this office letter No. 55, dated the 9th November 1897, I am directed by the Central Indigenous Drugs Committee to say that experiments with indigenous drugs noted on pages 33 to 35 of the Programme of Collections for 1897-98, are of necessity suspended, pending receipt of authentic parcels of the drugs it is contemplated to experiment with. Accordingly I am desired to enlist your co-operation at present in furnishing the root-bark of **Calotropis gigantea**, and would here suggest that a plot of the wild plant (or roadside of it) should be set apart. From among these, a parent plant might be selected for the supply of seed intended to be sown; by having a plot of land sown would ensure your having young plants, and you might regard the wild plants as old stock. We require to investigate the root-bark of both old and young plants. Of each set of plants, one-third should be dug up, each quite separately in the cold season, similarly, the second third in the hot weather, and the balance during the rains.

On the roots being dug up from the two plots (old and young) at each season named above, they should be carefully deprived of the bark, the wood rejected and the bark thoroughly dried in the shade. We require approximately about one maund of dry bark from each set of plants, at each season.

You may have furnished the root-bark of slightly older plants on each occasion, which will be to a certain extent immaterial. What, however, would be very material is the fact that cultivation might produce a change. To ascertain this point it would next be necessary to reserve a few plants from your cultivated plot and allow these to grow until they are about five years old, being the while carefully cultivated. The roots of such plants might then be analysed and the comparison made with your original wild stock and the old and young plants of the cultivated stock.

This is a long and difficult or rather troublesome request, but I feel sure you will be very glad to co-operate with the Indigenous

Drugs Committee in taking a personal interest in the experiment indicated. I beg to add in conclusion that a similar experiment is being made at Saharanpur with **C. procera**, but to make quite sure of the species, it might be as well to direct a flowering botanical specimen to be dried from the actual parent plant selected for supply of seed and to have that sent to me for determination

APPENDIX XXIII B.

No. 1223 A, dated Calcutta, the 9th June 1898.

From—P. C. LYON, Esq., C S, Director of the Department of Land Records and Agriculture, Bengal,

To—The Officiating Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Calcutta.

With reference to your letter No. 95, dated 4th May 1898, I have the honour to inform you that the experiment on **Calotropis gigantea** can be carried out on the Sibpur Experimental Farm.

APPENDIX XXIII C.

No. 98, dated the 11th May 1898.

From—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Superintendent, Government Botanic Gardens, North-West Provinces, Saharanpur

You were good enough to procure for me a supply of the floss of **Calotropis procera**. In connection with the Indigenous Drugs Committee I am required to procure a maund of the bark of the roots to be used in the preparation of a drug which is to be tested chemically and therapeutically. It is of the greatest importance that we should know definitely which species is being experimented with. We can depend implicitly on you, and I write, therefore, to ask whether you would be willing to give this subject your personal consideration and to procure for us the quantities required of the root-bark.

You will find the preparation of collections for the Indigenous Drugs Committee has been included in the programme of operations (pages 33 to 35). On hearing from you, I shall, if need be, address the Director of Land Records and Agriculture, since your bill for the article would have, of course, to be charged to the annual budget provision for such collections.

CALOTROPIS.
C. procera.

APPENDIX XXIII. C.

I may mention that in addition to doubts existing as to the comparative medicinal values of **C. gigantea** and **C. procera**, with both these there is much uncertainty as to whether the roots of old plants or of young plants are richest in the medicinal property. So also we possess no data as to what season of the year the drug should be collected. Accordingly the experiment that I am desired to enlist your co-operation in, may be summed up as follows: A plot of the wild plant (or road side of it) should be set apart to test age of plants most favourable. For this purpose it should be carefully examined and all the young plants clearly marked, the balance being treated as old plants. From the plot we should like the roots to be dug up at three seasons, *viz.*, the cold season, the hot season, and the rains. At each season we should require the collections from young plants, and from old plants kept quite distinct. On the roots being dug up they would have to be conveyed to your godowns and the bark at once carefully pealed off and dried in the shade. You would thus send us two parcels of bark, each weighing approximately one maund on three separate occasions. To make sure of getting young plants it might, perhaps, be a good plan to sow a small plot of land and to dig up one-third at one season, the second third at the next season, and the last third still later. These would be the roots of slightly older plants each season but that would not be material. What would, however, be very material would be the fact that cultivation might produce a change. To ascertain this point it would next be necessary to reserve a few plants from your cultivated plot to be allowed to grow till, say, they were five years old, and carefully cultivated the while. The roots of such plants might then be analysed and the comparison made with your original wild stock of young and of old plants with your young and old cultivated stock.

This is a rather long and difficult or rather troublesome order, but I feel sure you will be very glad to co-operate with the Indigenous Drugs Committee in taking a personal interest in the experiment indicated.

APPENDIX XXIII. D.

Dated the 13th May 1898.

Demi-official from—W. GOLLAN, Esq., Superintendent, Government Botanic Gardens, North-West Provinces, Saharanpur,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., Reporter on Economic Products to the Government of India, Calcutta.

In reply to your demi-official letter No. 98, dated the 11th instant, I shall be very glad to give my personal attention to the matter of

 CALOTROPIS. C. gigantea.

collecting root-barks of **Calotropis procera**. The plant is common here as single specimens and in groups of two or three specimens, but is nowhere so plentiful as to render possible the reserving of a portion of a roadside of it to test the age of the plants. Some years ago when visiting Gwalior, I saw a **Calotropis**, probably **C. gigantea**, so plentiful in places along roadsides that tons of roots could have been dug up within a furlong or two, but up this way the species we have is never found in such great abundance. As we are now in the middle of the hot season, I shall have a couple of maunds of root-barks collected and dried in the shade at once, separating the old from young roots by their size. Plants with a root of great length and thickness I shall class as old, and plants with a short and rather thin root I shall class as young. I fear this is the only practicable plan of separating the two classes of root. The cost to you will only be the pay of the labour employed on digging up the roots. As the plant affects hard ground and the roots run down to a great depth, the cost per maund may come heavy at this season of the year.

I shall also arrange to have a pot of the plant cultivated and have the roots dug up three times a year as you suggest. The seeds will ripen in about a fortnight, and as I shall sow them as soon as ripe, I could let you have one year old root-barks about the end of May 1899.

As already stated, I shall arrange for the first lot of wild root-barks at once, but in order to facilitate settlement of accounts, you might make formal application for its supply through the Director of Land Records and Agriculture, North-West Provinces and Oudh.

No. 388, dated Sibpur, the 14th June 1898.

From—The Principal, Civil Engineering College, Sibpur,

To—The Officiating Reporter on Economic Products to the Government of India and Honorary Secretary, Indigenous Drugs Committee, Calcutta.

With reference to the last portion of your letter No. 95, dated 4th May 1898, addressed to the Director of Land Records and Agriculture, a copy of which has been sent to me, I have the honour to send herewith a fresh specimen of **Calotropis gigantea** in flower for identification, and to request you to be so good as to communicate to me at an early date whether you wish experiments made with this plant. C. gigantea.

CALOTROPIS. C. procera.

APPENDIX XXIII. D.

A similar letter to that sent to the Director of Agriculture, Bengal (No. 95 of the 4th May 1898), was also issued to the Board of Revenue, Madras (letter No. 97, dated the 11th May 1898). This asked for a supply of the root-bark of C. gigantea. In reply the Board of Revenue reported (Resolution No. 3-Mis. of the 2nd January 1899) that the Collector, Coimbatore, would supply.

APPENDIX XXIII. E

No. 102, dated the 25th May 1898.

Demi-official from—The Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—W. GOLLAN, Esq., Superintendent, Government Botanical Gardens, North-West Provinces, Saharanpur.

Your letter, dated the 13th instant, to Dr. Watt (now on furlough), has been duly received by me, and in reply I may say that the plan suggested by you to collect the root-bark of Calotropis procera seems to be satisfactory, and I shall be obliged if you will kindly issue the necessary orders to carry it out. This supply will complete the first consignment of root-bark consisting of both old and young plants collected in the hot weather. The second should be gathered during the rains and the last in the cold season.

I am to-day addressing the Director, Land Records and Agriculture, North-West Provinces and Oudh, with a view to his meeting any bills that you may present to him for the above collections.

APPENDIX XXIII. F.

No. 823, dated Saharanpur, the 28th July 1898.

From—W. GOLLAN, Esq., Superintendent, Government Botanical Gardens, North-West Provinces, Saharanpur,

To—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, Calcutta.

Hot weather. Reg Nos. 11096-1.

With reference to correspondence ending with your demi-official No. 102, dated the 25th May last, I have the honour to advise despatch of two maunds of the root-barks of Calotropis procera collected from old (Reg. No. 11096-1) and young (Reg. No. 11096) plants during the *hot weather*, and beg to request the favour of an acknowledgment.

APPENDIX XXIII. G.

No. 841, dated Saharanpur, the 23rd September 1898.

From—W. GOLLAN, Esq., Superintendent, Government Botanical Gardens, North-West Provinces, Saharanpur,

To—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, Calcutta.

In continuation of my letter No 823, dated 28th July 1898, I have the honour to enclose herewith the Railway receipt for two maunds of the root-bark of **Calotropis procera** collected from old (Reg. No 11096-3) and young (Reg No 11096-2) plants during *the rains*, and to request the favour of an acknowledgment thereof. *Rains. Reg. Nos 11096 2 3*

APPENDIX XXIII. H.

No 163, dated the 31st August 1898

From—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—The Medical Store-keeper to Government, Bengal Command, Calcutta.

Under instructions from the Central Indigenous Drugs Committee I have the honour to send by bearer 70lb of old root-bark of **Calotropis procera** (Reg No 11096-1), the receipt of which kindly acknowledge in due course. *Old hot weather bark experimented with*

It is desired that a portion of the bark be made into a *tincture* with rectified spirit of the strength of 2½ ounces to a pint, and that about 12lb be reduced to fine *powder*.

I shall be further obliged if you would, when the preparations are made, distribute 2 gallons of the tincture and one pound of the powder to each of the Honorary Secretaries of the Indigenous Drugs Committees mentioned in my letter No 139, dated 16th August 1898. *Sent to Imperial Institute* *See p. 294.*

Kindly advise me when the drugs are about to be despatched, so that I may know when to issue the usual circular letter.

APPENDIX XXIII I.

No 1264, dated Calcutta, the 27th September 1898.

From—The Medical Store-keeper to Government, Bengal Command, Calcutta,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

With reference to paragraph 4 of your No. 163, dated 31st August 1898, I have the honour to state that I have now ready for distribution 240lb of tincture **Calotropis procera** and 12lb of fine powder.

CALOTROPIS.
C. procera.

APPENDIX XXIII. J.

No. 176-I. D. C., dated the 6th October 1898.

From—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—The Medical Store-keeper to Government, Bengal Command, Calcutta.

In acknowledging the receipt of your letter No. 1264, dated the 27th September 1898, stating that 240lb of tincture of **Calotropis procera** and 12lb of fine powder are now ready for distribution, I am directed to ask the favour of your being so good as to kindly distribute 2 gallons of the tincture and 1lb of the powder to each of the Honorary Secretaries of the Local Indigenous Drugs Committees mentioned in my letter No. 123, dated the 23rd July last.

APPENDIX XXIII. K.

Nos. 182-188-I D C, dated the 15th October 1898.

From—D. HOOPER, Esq, Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—The Secretaries, Local Committees, Indigenous Drugs.

Conf. with pp 255, 261, 354

In continuation of this office letter Nos (150 to 157), dated 26th August 1898, I have the honour to inform you that 2 gallons of tincture and 1lb of powder from **Calotropis procera** prepared by the Medical Store-keeper to Government, Bengal Command, have been despatched to your address. I am to request you to be so good as to institute therapeutic tests with the preparations, and record the results in the forms already supplied to you for that purpose

2. As a general rule, **Calotropis procera** is recommended as an alterative, alterative tonic and as a substitute for Ipecacuanha The Central Committee would, therefore, be obliged for an opinion as to its emetic and diaphoretic properties, and a report on the value of the powder as a remedy in dysentery.

Hospitals. Conf. with pp 164, 168-71, 204, 219, 255, 297-300, 354.

3. The Central Committee should be supplied with a list of the selected hospitals and dispensaries in which the trials are to be made in your province.

4. In conclusion, I am to add that the results should be submitted about six months after receipt of the preparations, or by the 1st May 1899.

No. 182-I. D. C., dated 15th October 1898. In continuation No 150, dated 26th August 1898.	Honorary Secretary, Local Indigenous Drugs Committee, Medical College, Calcutta.
No 183-I. D. C, dated 15th October 1898. In continuation No 151, dated 26th August 1898.	Assistant Surgeon E. Thomas, Honorary Secretary, Local Indigenous Drugs Committee, North-West Provinces and Oudh, Agra.

TO PARAS. 20, 67 (*b*), 75, 78 (*b*) AND 85 (*c*) OF THE REPORT. CALOTROPIS.
C. procera.

No. 184-I. D. C., dated 15th October 1898. In continuation No. 152, dated 26th August 1898.	Surgeon-Captain W. D. Sutherland, Honorary Secretary, Local Indigenous Drugs Committee, Panjab, Lahore.
No. 185-I. D. C., dated 15th October 1898. In continuation No. 153, dated 26th August 1898.	Surgeon-Lieutenant-Colonel R. N. Campbell, Honorary Secretary, Local Indigenous Drugs Committee, Assam, Shillong.
No. 186-I. D. C., dated 15th October 1898. In continuation No. 155, dated 26th August 1898.	Surgeon-Lieutenant-Colonel G. T. Thomson, Honorary Secretary, Local Indigenous Drugs Committee, Burma, Rangoon.
No. 187-I. D. C., dated 15th October 1898. In continuation No. 156, dated 26th August 1898.	Surgeon-Lieutenant-Colonel J. Parker, M.D., Honorary Secretary, Local Indigenous Drugs Committee, Medical Store Department, Bombay.
No. 188-I. D. C., dated 15th October 1898. In continuation No. 157, dated 26th August 1898.	Honorary, Secretary, Local Indigenous Drugs Committee, Medical College, Madras.

APPENDIX XXIII. L.

No. 27-I. D., dated Betul, the 9th October 1898.

From—MAJOR H. E. BANATVALA, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Civil Surgeon, Betul, Central Provinces,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

I have the honour to inform you that the Medical Store-keeper to Government advises me that he is sending me TINCTURE Calotropis procera and POWDER for trial in the dispensaries of these provinces.

2. I shall be much obliged by your informing me how many more drugs will be sent for report before February next, *i.e.*, to be included in the report due in your office on the 1st April next.

3. Could you also tell me please, after communication with the Medical Store-keeper, Calcutta, if he could undertake to supply the dispensaries of the provinces direct instead of through me, as, this station being 55 miles from the line of rail, it adds to the expenditure in cost of repacking and cartage. Asks that Dispensaries be supplied direct.

CALOTROPIS.
C. procera.

APPENDIX XXIII M.

No 178, dated the 15th October 1898.

From—D HOOPER, Esq, Officiating Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—MAJOR H F BANATVALA I M S, Honorary Secretary, Local Indigenous Drugs Committee, Betul.

I have the honour to acknowledge the receipt of your letter No 27 of the 9th instant, on the subject of the distribution of drugs for trial in the Central Provinces

The TINCTURE and POWDER of **Calotropis procera** are now being forwarded to you for the purpose of testing their alterative and alterative tonic properties as indicated in the *Pharmacopœia of India.* The powder is also recommended as a substitute for Ipecacuanha, and the Central Committee would be glad to have an opinion as to its emetic and diaphoretic qualities and as a remedy for dysentery

Period allowed for Reports.

It is not intended that the report on **Calotropis** should be sent in by the date fixed in my letter No 143, dated 16th August 1898, which referred to **Adhatoda** and **Picrorhiza** tinctures and Indian **Podophyllum**, but a period of six months is supposed to allow sufficient time for a series of experiments being made with each drug. The report on **Calotropis** will, therefore, be expected on or about the 1st May 1899

No further medicines are now being prepared for distribution to the Local Committees, as it is considered that better results can be accomplished by carefully operating upon a few preparations at one time

Hospitals. *Conf with pp 297-300*

Referring to my letter quoted above, you will notice that a list of trial hospitals and dispensaries should be selected by each Local Committee. If the list of these institutions in your Provinces is submitted to me I will endeavour, after consultation with the Medical Store-keeper to Government, Bengal Command, Calcutta, to have the tinctures sent direct

APPENDIX XXIII N.

No. 1715, dated Calcutta, the 16th December 1898.

From—The Medical Store-keeper to Government, Bengal Command, Calcutta,

To—The Officiating Reporter on Economic Products to the Government of India Calcutta

I have the honour to request the favour of being informed of the rate at which **Calotropis procera**, supplied to this depôt for the

preparation of its tincture, was procured. The information is required for the Examiner of Commissariat Accounts, Bengal Command, in pricing the cost of tincture prepared.

APPENDIX XVIII A

No 207-I D. C, dated the 20th December 1898.

From—The Officiating Reporter on Economic Products to the Government of India, Calcutta.

To—The Superintendent, Government Botanical Gardens, North West Provinces and Oudh, Saharanpur

With reference to the correspondence ending with this office letter No. 177-I.D.C., dated the 12th October 1898, I am directed to request you to be so good as to quote the cost of collecting and furnishing the two maunds of the root-bark of **Calotropis procera**. The information in question is urgently required for the Medical Store Department, Calcutta.

A reply at your earliest convenience will greatly oblige.

No. 208-I. D. C.

Copy to Medical Store-keeper to Government, Bengal Command, for information, with reference to his letter No 1715, dated 16th December 1898.

APPENDIX XVIII B

No. 880, dated Saharanpur, the 22nd December 1898.

From—The Superintendent, Government Botanical Gardens, North-West Provinces and Oudh, Saharanpur,

To—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, Calcutta.

In reply to your No. 207-I. D. C., dated the 20th December 1898, I have the honour to say that the cost of collecting, stripping and drying the root-bark of **Calotropis procera** was at the rate of R14-14-0 per maund for hot weather collection and R9-14-0 per maund, for rainy season collection. The root-bark now being collected will probably cost about the same rate as the hot weather lot.

CALOTROPIS.
C. procera.

APPENDIX XXIII. P.

The plant is partial to dry hard ground, and being very deep-rooted, a coolie can only dig up a small bundle of roots during the day.

APPENDIX XXIII. Q.

No. 209-I. D. C., dated the 28th December 1898.

From—The Officiating Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Medical Store-keeper to Government, Bengal Command, Calcutta.

With reference to your letter No. 1715, dated the 16th instant, I have the honour to inform you that the price of the bark of **Calotropis procera** supplied to you is R14-14 per maund.

APPENDIX XXIII. R.

No 883, dated Saharanpur, the 2nd February 1899.

From—The Superintendent, Government Botanical Gardens, North-West Provinces, Saharanpur,

To—The Reporter on Economic Products to the Government of India, Calcutta.

I have the honour to enclose herewith the Railway receipt for 180lb (Reg. No. 11096-5) of root-bark of **Calotropis procera** collected from old plants, and 140lb (Reg. No. 11096-4) from young plants collected during the winter season, and request the favour of an acknowledgment thereof.

TO PARAS. 67 (a), 75, 78 (a) AND 85 (c) OF THE REPORT.

Communications on Podophyllum Emodi.

Further papers on the subject of the Rhizomes and Resin of **Podophyllum Emodi**. These are given in continuation of the communications already published in Appendix XVIII, pp 211 to 228. Further communications will be found in Appendix, pp. 251, 255, 270, 305, 360, 365, and 475-81.

Dated the 24th July 1898.

From—The Conservator of Forests, Kashmir, Srinagar,

To—The Officiating Reporter on Economic Products to the Government of India, Calcutta.

I have the pleasure to send by parcel post some roots and seeds of the **Podophyllum** found in Kashmir.

As this plant grows to an height of 3 or 4 feet, and the root seems much larger than the specimen you gave me, I wish to make sure that it is the true **Podophyllum** and not a variety which may be less valuable. I have collected seeds for planting out in case it may be the true plant.

Will you kindly let me know soon.

No 125, dated the 27th July 1898.

From—The Officiating Reporter on Economic Products to the Government of India,

To—The Medical Store-keeper, Bengal Command, Calcutta.

In continuation of my letter No. 123, dated the 23rd July 1898, I have the honour to request you to kindly distribute 1 oz of *Indian Podophyllin* to each of the Local Indigenous Drugs Committee enumerated therein, except those of Bombay and Calcutta.

No. 2335, dated the 6th September 1898.

From—The Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—GENERAL DE BOURBEL, Conservator of Forests, Kashmir.

In continuation of my letter of the 6th ultimo, I have the pleasure to inform you that I have completed an analysis of the dried root of **Podophyllum Emodi** which you were kind enough to forward with your letter of the 24th July

Cultivation of Podophyllum.

Yield of Resin.

The root yields the unprecedented amount of 14 per cent. of resin or podophyllin. This yield is the highest on record, and will go a long way to establish the value of the Indian **Podophyllum** rhizome in comparison with that of the American **Podophyllum peltatum.**

I hope the cultivation of this drug from the seeds will prove most successful, and that the roots will give as much of the active principle as those of the parent plants. As to the time for collecting the roots for the market, it has been shown by previous experiments that the best season is when the fruits are ripening.

No. 2717—121, dated the 7th October 1898.

From—The Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—The Conservator of Forests, Kashmir.

I have the honour to acknowledge the receipt of your letter, dated the 26th ultimo, on the subject of **Podophyllum Emodi** root and to say that I shall feel obliged by your letting me know how much root is available and the price for the same.

No 203-I.D.C., dated the 15th December 1898.

From—The Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—The Medical Store-keeper, Bengal Command, Calcutta.

At the request of General de Bourbel, the Conservator of Forests, Kashmir, I have the honour to forward herewith 4℔ of **Podophyllum Emodi** rhizomes, and to request you to be so good as to inform me if you are prepared to purchase any quantity of this drug. I may say that the root is of very superior quality, and that a specimen received in August from General de Bourbel afforded as much as 14 per cent. of resin or PODOPHYLLIN. My correspondent would be glad to know the market price of the dried root and the quantity you are likely to require should you wish to purchase the drug.

No 1938, dated Calcutta, the 23rd January 1899.

From—The Medical Store-keeper to Government, Bengal Command, Calcutta,

To—The Officiating Reporter on Economic Products to the Government of India, Calcutta.

With reference to your No 203-I. D. C., dated 15th December 1898, forwarding 4℔ of **Podophyllum Emodi** roots and

enquiring if I am prepared to purchase any quantity of this drug, I have the honour to state that, as the question of substituting locally-prepared PODOPHYLLI RESINA for the imported drug has not as yet been settled, I am not at present prepared to purchase any quantity.

No. 29 I. D. C., dated the 30th March 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., Reporter on Economic Products to the Government of India, Calcutta,

To—COLONEL D. P. MACDONALD, I.M.S., Medical Store-keeper to Government, Bengal Command, Calcutta.

You are aware that in connection with the issue of preparations of Indian Indigenous Drugs to Hospitals and Dispensaries for therapeutic investigations, it was contemplated by the Central Indigenous Drugs Committee that a surplus stock both of the raw material and of the preparations should be reserved for the purpose of being issued as type samples to Indian and other Medical Schools. As apparently you were not officially asked to furnish this office with a supply of each of the tinctures and of the resin of Podophyllum, it is feared you may not now be in a position to do so. In that case I shall be glad to learn whether you could prepare, say, 1lb each of the tinctures and ½lb of the resin. If so I shall be glad to know if you possess sufficient quantities of the crude drugs, and, if not, what quantities you would require. It is considered very desirable that the system of issuing the crude drugs and their preparations should commence with the first drugs. I am therefore anxious to remedy the mistake, if such exists, of not having reserved a supply of the tinctures, etc., that have already issued.

No. 18, dated Calcutta, the 5th April 1899.

From—The Medical Store-keeper to Government, Bengal Command, Calcutta,

To—The Reporter on Economic Products to the Government of India, Calcutta.

In reply to your No. 29 I. D. C., dated the 30th March 1899, I have the honour to state that the stock of preparations of the Indian Indigenous drugs now in store at this depôt will be sufficient to supply you with 5lb of each of the tinctures. But I shall be glad to have 6lb of the Podophyllum root to prepare the resin from.

The Resin of Pterocarpus Marsupium—Kino
Conf. with Report, p. 5.

APPENDIX XXV. A.

Communications on Pterocarpus Marsupium—Kino.

Abstract of Correspondence.

On September 23rd, 1895, Mr. E. M. Holmes, of the Pharmaceutical Society of Great Britain, wrote to Dr. Watt that the supply of Kino was very low and prices abnormally high. In consequence the Reporter on Economic Products addressed the Inspector General of Forests on the desirability of an effort being made to develop the trade in this product. An extensive correspondence ensued, with Forest Officers in Bombay, Madras and the Central Provinces, and a large series of samples obtained. These have been chemically examined by Mr. D. Hooper in Calcutta, and commercial valuations procured from the Imperial Institute. Interest in **Kino** may, therefore, be said to have been successfully aroused, and very shortly an *Agricultural Ledger* will be published that will give full particulars. Meantime it may be useful to record here the communications on the subject that have been received (or issued) by the Central Indigenous Drugs Committee.

APPENDIX XXV. B,

Extract from Lieutenant-Colonel J. Parker, I.M.S., Medical Store-keeper to Government, Bombay Command, to the Reporter on Economic Products to the Government of India,—No. 1364-G., dated the 21st February 1896.

As promised, I have the honour to forward the following particulars with regard to Kino.

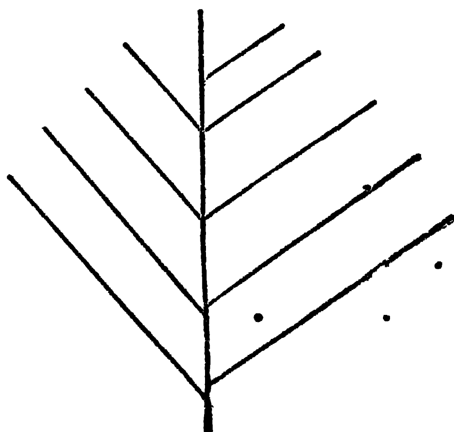
Kino—**Pterocarpus Marsupium.**

2. Finding it well nigh impossible to obtain genuine B. P. Kino in the local market in sufficient quantity and at a desirable rate, I asked the District Forest Officer, North Malabar, in March 1894, whether he could undertake to supply the article to this Department procured from the **Pterocarpus Marsupium** which was understood to abound in that locality. The officer answered in the affirmative, and I have since obtained the requirement of this Department from that source at a cost of 6 to 8 annas per lb (dried state) inclusive of all charges delivered at this depôt. The home rate is believed to be about 17s. per lb, and the highest quotation I have so far received at Bombay is R40 per lb. Mr. Marshall, the Forest Officer, who supplies the drug, states there is no demand or

trade in the article locally, and that the yield per tree is roughly 1½ lb. A pound and a half of fluid gum is equivalent to about three quarters of a pound of dried gum ready for medicinal purposes.

3. Mr. Marshall has favoured me with the following account of his mode of collecting, and subsequently purifying the gum before despatching the same to Bombay in the fluid state packed in Kerosine oil tins, *viz.*:—

"The collection is done by the Kurumbers, who cut incisions into the bark of the tree down to the cambium, thus:—



"At (A) a bamboo tube is tightly fixed and left to fill. When full, usually in the course of a day, it was roughly stoppered with leaves and despatched to head-quarters, when I had it all put in a large caldron and boiled, the boiling was my idea and was done to get rid of some of the superfluous moisture and also of impurities, as when boiling all such (*e.g.*, bits of bark, wood, leaves) rise to the surface with a thick scum which is taken off. The gum is then allowed to cool, put into tins and despatched. On arrival at Bombay the gum is exposed in shallow vessels and in thin layers in the open to the sun and dried. The yield of the dried from the fluid gum is something over 50 per cent. depending on the exact consistence of the latter."

4. The estimated annual requirement of Kino by the Medical Department of India is about 300 lb, which at 8 annas per lb costs R150, whereas were this drug imported from England, where it is not produced, at 17*s*. per lb, the cost would amount to something like R4,371 at 1*s*. 2*d*. exchange. This is a striking instance of the financial advantage of procuring whatever drugs are now recognised by the profession, and which India may produce direct from

their source as far as practicable. Collection under Government supervision is a guarantee of purity, a very great consideration when dealing in drugs, and an article so obtained could be transferred to the Medical Department for the mere cost of collection and incidental charges. The Kino supplied from Malabar is of exceptional quality, the best I have ever seen. According to Mr. Marshall the gum is of inferior quality during the rains, and should be collected after the monsoon when the trees are in blossom, at the beginning of the dry season. The **Pterocarpus Marsupium** is also found in the Kanara and Thana Collectorates of the Bombay Presidency, but the mode of collecting, etc., appears to be better understood at Malabar.

APPENDIX XXV. C.

No. 3130, dated Simla, the 8th June 1898.

From—The Secretary to the Director General, Indian Medical Service,

To—The Secretary, Indian Indigenous Drugs Central Committee, Calcutta.

I am directed to forward, for the information of the Indian Indigenous Drugs Central Committee and for such action as may be deemed necessary, copy of paragraph 12 from a letter No. 2-193, dated 20th April 1898, from the Medical Store-keeper, Madras Command, in which he suggests the more extensive cultivation of local products by the Departments of Government concerned.

APPENDIX XXV. D.

Extract, para. 12, from a letter from Medical Store-keeper to Government, Madras Command, Madras, to the Secretary to the Director General, Indian Medical Service, Simla,—No. 2-193, dated 20th April 1898.

* * * * *

12. The Board of Revenue was addressed on 15th July 1897 with a view to eliciting information as to what supplies might be obtained through the Forest Department from the various districts of the Presidency, and a list of what seemed the most likely articles was furnished.

 KINO.

Beyond Kino from North Malabar, wax and gum from Coimbatore, and squill (of a sort inferior to the imported article) from Tanjore, little or no help, it seems, can be looked for.

The main difficulty seems to be that the Forest Officers have no means of collecting these so-called "Minor Products," the rights to which are consequently put up to auction and sold for a small sum. In some instances no attempt seems to have been made to find a market. For example, Kino, which is fetching anything from 10s. to 15s. per lb on the London market, appears never to have been collected in Coimbatore or Madura.

It seems a thousand pities that, pressed as Government is, for money, the unrivalled sources of many important supplies at its Command should not be exploited in a businesslike way. Were this done, the cost of the necessary establishment would, as in the case of the salt tax, be easily met, and the despised "Minor Products" might shortly develop into a not contemptible source of revenue.

APPENDIX XXV. E.

No. 112, dated the 28th June 1898.

From—The Reporter on Economic Products to the Government of India and Honorary Secretary to the Indigenous Drugs Committee Calcutta,

To—The Secretary to the Director General, Indian Medical Service, Simla.

I have the honour to acknowledge, with thanks, the receipt of your letter No. 3130, dated 8th June 1898, with its enclosure, and in reply to inform you that the subject of the more extensive cultivation of local products will be brought before the Central Committee when it next meets.

MADRAS SUGGESTED ADDITIONS TO LIST OF DRUGS.

Subsequent Communications. *Conf. with App., pp. 301-02.*

APPENDIX XXVI. A.

Provisional List of Indigenous Drugs.

No. 93, dated the 20th April 1898.

From—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Professor of Materia Medica, Medical College, Madras.

In reply to Surgeon-Lieutenant-Colonel W. R. Browne's letter No. 171, dated 15th September 1896, I issued to your address letter No. 47 of the 28th September 1897 (*App., p. 201*), which gave cover to the Report of the Proceedings of the Central Committee and to a set of forms to be used in experimenting with the drugs which it is proposed to very shortly furnish to your Committee. At the special request of the Central Committee I invited you to convene a meeting of the Madras Local Committee and to lay before them paragraph 60 of the Report with the provisional list of drugs shown on pages 179 to 184 of the Appendix

Issue of Forms.

2. As no reply had been received to the above, I addressed a second letter to you on the same subject, No. 68, of the 6th January 1898 (*App., p. 202*). So far the Central Committee have received no replies to these letters from the Madras Committee, and I am desired to ask you whether they were received and have been placed before your Committee. At the same time I am to add that the Central Committee is not in a position to take any step toward issuing drugs for research until it has had the benefit of local opinion and knowledge in determining the drugs to be selected for experiment. The Central Committee trust, therefore, that, with the approval of the President of your Committee, you may be able to call a meeting at an early date; and, if this has not been done already, to place before them, for consideration and report, the papers with which you have been furnished.

Issue of Drugs retarded.

APPENDIX XXVI. B.

Dated the 6th May 1898.

From—Surgeon-Captain F. J. Crawford, M.D., Honorary Secretary, Indigenous Drugs Committee, Madras,

To—The Honorary Secretary, Indigenous Drugs Committee, Indian Museum, 1, Sudder Street, Calcutta.

Conf. with pp. 201-02.

I am desired to acknowledge receipt of your letter No. 93, dated April 20th, 1898, and to state that your letters Nos. 47 and 68

 MADRAS ADDITIONS TO LIST OF DRUGS

were received in due course and the necessary information obtained for submission to the Local Committee; through inadvertence and press of other work a meeting of the Committee was not called till April 28th.

The Proceedings of this meeting I am now directed to forward to you.

Proceedings of a meeting of the Madras Branch, Indigenous Drugs Committee, held at the General Hospital on the 28th April 1898.

Present:

Subsequent Meeting. *Conf. with App., p. 3.*

SURGEON-LIEUTENANT-COLONEL W. R. BROWNE, M.D., Principal, Medical College, Madras.

SURGEON-MAJOR H. ST. C. CARRUTHERS, Medical Store Keeper to Government, Madras Command.

SURGEON-CAPTAIN F. J. CRAWFORD, M.B., Professor of Materia Medica, Medical College, *Secretary*.

The Committee had before them the following letters from the Honorary Secretary of the Central Committee:—

No. 47 of September 28th, 1897,
No. 68 of January 6th, 1898,
No. 93 of April 20th, 1898,

as well as the references in these letters to the Central Committee different Proceedings.

RESOLUTION.—The Local Committee consider that the list of indigenous drugs, as shown in Appendix XIV of the Proceedings, is already so full, they have only the names of the following drugs to add to the list which have acquired a reputation in Southern India:—

DRUG.	REFERENCE AND REMARKS.
(1) Hardwickia pinnata.	A tree very common in Travancore and Tinnevelly. Balsam obtained in the usual way from the wood of the tree. "There appears little doubt that the balsam could effectually substitute copaiva balsam in Medicine." (Extract from Beddome's Flora of Southern India). "This balsam has been used in India for gonorrhœa and with as much success as copaiva" (Extract from Pharmacographia by Flückiger and Hanbury).

MADRAS: ADDITIONS TO LIST OF DRUGS.

APPENDIX XXVI. B.

DRUG.	REFERENCE AND REMARKS.
(2) Tylophora asthmatica.	In Appendix XIV. this drug is referred to under diaphoretics and sudorifics, but it has a reputation as an emetic and an anti-dysenteric, resembling Ipecacuanha in many ways. Further trial of its anti-dysenteric properties is very advisable. It grows abundantly on Southern India.—(Ref. Dymock, Materia Medica of Western India, page 520).
(3) Butea frondosa	Seeds much used in South India for its anthelmintic properties against both round and tapeworms—(Waring, Dymock, etc).
(4) Toddalia aculeata	Stimulant, carminative and tonic. Dried root-bark is the part of the plant of most value.—(Waring). Surgeon-General Bidie says "there exists in this drug the most happy combination of tonic, stimulant and carminative properties.—(Pharmacopœia of India, Waring, page 442).

No. 40-I. D. C., dated the 8th April 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretary, Indigenous Drugs Committee, Madras.

I have the honour to enclose an extract from paragraph 77 of the Proceedings of the Tenth Meeting of the Central Indigenous Drugs Committee, held on the 2nd August 1898, and to invite your attention to the remarks regarding Butea frondosa seeds. It will be seen that the Central Committee think it is desirable that the subject should be specially investigated by your Committee. I shall therefore be much obliged if you will be so good as to cause the enquiry to be taken in hand at an early date.

LOCAL COMMITTEE.

APPENDIX XXVII. A. TO PARAS. 66 (a) AND 77 (b).

Local Committees

No 88, dated the 20th April 1898

From—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To Surgeon-Lieutenant-Colonel G Bomford, M D, President, Local Indigenous Drugs Committee, Bengal.

Previous Communications. *Conf with pp 142, 160, 164, 166, 169-177, 203 04, 301-02, 331.* Bengal.

By the Government of Bengal letter No 935, dated 19th February 1897 the Central Indigenous Drugs Committee were informed that their request to have a Committee for the Province of Bengal had been acceded, and that you had been appointed President. Since, however the Bengal Committee had been thus formed at a later date than the Committees in other provinces, I regret exceedingly that my office inadvertently overlooked the notification of its creation, and did not issue to your Committee the Circular letter that gave cover to copies of the report the provisional classified list of drugs and the forms to be used in recording experiments. The mistake that had been made was only discovered by me during the meeting of the Central Committee on the 15th instant, when it was found that no reply had been received from Bengal approving or making amendments to the provisional and initial classified list.

2 In forwarding to you at this late hour the papers in question, I trust you will take an early opportunity to convene a meeting of your Committee to discuss the points raised in paragraph 6 of the Central Committee's report more especially the proposed classification that you will find on pages 179 to 184 of the Appendix and to favour the Central Committee with your views and recommendations regarding drugs of a more or less local nature.

APPENDIX XXVII. B.

No. 704, dated Calcutta, the 14th June 1898

From—The Principal, Medical College Calcutta,

To—The Honorary Secretary Indigenous Drugs Committee, Calcutta

In reply to your No 88, issued 17th May 1898 I have the honour to inform you that only one member of the local Indigenous

BENGAL: LOCAL COMMITTEE.

APPENDIX XXVII. B.

No Proposals.

Drugs Committee is at present in Calcutta, *viz.*, Dr. Evans. I have discussed your letter and paragraph 60 of the Committee's report with him, but so far we have no proposals to offer as regards adding to the list of drugs.

The preparations which are to be supplied to us for experiment have not been received.

As I am leaving India on furlough, I would suggest that the Committee be reconstructed.

N.-W. P. LOCAL COMMITTEE.

Conf. with Report, para. 66 (f).

APPENDIX XXVIII. A. TO PARAS. 66 (f) AND 77 (c) OF THE REPORT.

No. 89, dated the 20th April 1898.

From—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Secretary to the Government of the North-West Provinces and Oudh (Revenue Department).

Referring to your letter No. 297—V.-237 B, dated the 13th October 1896, on the subject of the Provincial Indigenous Drugs Committee, I am directed by the Central Committee to say that, as they have not been favoured with the names of the President and Members of the Local Committee, considerable difficulty has been experienced. The Central Committee will accordingly feel obliged if you will be so good as to ascertain from His Honour the Lieutenant-Governor whether they can be favoured with this information.

2. Your letter under reference informed the Central Committee that Assistant Surgeon Masha Alla Khan, Lecturer on Materia Medica, Agra Medical School, had been appointed Honorary Secretary. Accordingly a provisional list of drugs that it was proposed should be experimented with was issued to that officer. The reply received presumed that no additions or suggestions were to be offered on the list since the Honorary Secretary had received no communications or suggestions from any member of the Local Committee. As that reply seemed more an expression of the opinion of one member rather than of the Committee, I was directed by the Central Committee to enquire of Assistant Surgeon Masha Alla Khan whether he had called together a meeting of the Local Committee and placed the papers furnished by me before them for consideration and report. To this came the reply that Mr. Masha Alla Khan had been made Health Officer, Agra, from the month of October 1897, and that Mr. E. Thomas had taken over charge of his work for the present. The Central Committee had no means of discovering whether that meant that Mr. Thomas had taken over the duties of Honorary Secretary. At all events, up to the present date the Central Committee have received no further communications from the North-West Provinces and Oudh.

3. I am desired to point out in conclusion that, until the Central Committee have been favoured with the views of all the Local Committee on the drugs to be investigated, it is not in a position to take any very decided steps toward issuing drugs for the purposes of

APPENDIX XXVIII. A.

research and experiment. In other words it is not in a position to carry out the duties and obligations laid on it by the Government of India.

APPENDIX XXVIII. B.

No. 554—V.-237 B., dated Naini Tal, the 10th June 1898.

From—The Under-Secretary to Government, North-West Provinces and Oudh (Revenue Department),

To—The Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Calcutta.

I am directed to acknowledge the receipt of your letter No. 89, dated the 20th April 1898, enquiring the names of the President and members of the Local Indigenous Drugs Committee.

2. In reply I am to enclose, for the information of the Central Committee, a copy of an order No. 329—V.-237 B., dated the 3rd November 1896, by this Government constituting a Committee for the North-West Provinces and Oudh. Four of the members, it will be seen, have been appointed *ex officio* The present holders of the appointments are:—

(1) Principal, Agra Medical School—Surgeon-Major J. J. Pratt,
(2) Civil Surgeon, Lucknow—Surgeon-Lieutenant-Colonel J. McConaghey,
(3) Civil Surgeon, Benares—Surgeon-Major J. F. MacLaren,
} *Members.*

(4) Lecturer on Materia Medica in the Agra Medical School—Assistant Surgeon E. H. Thomas, *Honorary Secretary.*

3. I am to add that no President has been appointed, but it is suggested that the senior member of the Committee for the time should assume that office.

APPENDIX XXVIII. C.

No. 329—V.-237B., dated Naini Tal, the 3rd November 1896.

From—The Secretary to Government, North-West Provinces and Oudh (Revenue Department),

To—The Inspector General of Civil Hospitals, North-West Provinces and Oudh.

With reference to the correspondence ending with your letter No. 7044 G., of the 20th instant, I am directed to say, with reference

N.-W. P. LOCAL COMMITTEE

to paragraph 3 of the Resolution of the Government of India, Home Department, No. $\frac{18\text{-Medical}}{643-661}$, dated the 31st July 1896, that the Lieutenant-Governor and Chief Commissioner has been pleased to appoint the following officers as members of a Local Committee for the investigation into the uses of indigenous drugs. The Local Committee should be requested to correspond direct with the Central Committee:—

(1) The Principal of the Agra Medical School,
(2) The Civil Surgeon of Lucknow,
(3) The Civil Surgeon of Benares,
(4) Surgeon-Lieutenant-Colonel M. D. Moriarty, Civil Surgeon of Meerut,
(5) Surgeon-Major G. M. J Giles, Civil Surgeon of Saharanpur,
(6) Surgeon-Captain A. E. Roberts, Civil Surgeon, of Aligarh,
(7) Dr. E. J. Simpson, Civil Surgeon of Rai Bareli,

Members.

(8) The Lecturer on Materia Medica, Agra Medical School, *Honorary Secretary.*

Dr. Hendley, Administrative Medical Officer of Rajputana, will be invited to join the Local Committee as a corresponding member.

APPENDIX XXVIII. D.

No. 164, dated the 31st August 1898.

From—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—The Honorary Secretary, Indigenous Drugs Committee, North-West Provinces and Oudh, Agra.

I have the honour to draw your attention to Dr. Watt's letters Nos. $\frac{49}{65}$, dated $\frac{\text{20th September 1897}}{\text{6th January 1898}}$, respectively, and to request the favour of your convening a meeting of the Local Committee at an early date in connection with the enquiry into Indigenous Drugs in the North-West Provinces.

Conf. with App., pp. 201-02.

C. P.: LOCAL COMMITTEE.

APPENDIX XXVIII. E.

No. 6463, dated the 13th September 1898.

From—G. Sherlock-Hubbard, Esq., Assistant Secretary to the Chief Commissioner, General Department, Central Provinces, Nagpur,

To—The Honorary Secretary, Indian Indigenous Drugs Committee, Calcutta.

Appointment.

In continuation of this office letter No. 6754, dated the 5th October 1896, I am directed to inform you that Surgeon-Major A. Silcock, Civil Surgeon, Nagpur, has been appointed by the Chief Commissioner to be a member of the Sub-Committee in the Central Provinces in connection with the Indigenous Drugs Committee in place of Surgeon-Major G. F. A. Harris, who has left the Provinces.

APPENDIX XXIX. A. TO PARAS. 67 (*f*), 79, 95 AND 97 (7).

Communications on Indian Squills.

(*In continuation of pages 233-243.*)

No. 178 H., dated the 28th June 1898.

From—The Superintendent, Royal Botanic Garden, Calcutta,

To—The Secretary, Indigenous Drugs Committee, and Reporter on Economic Products, Indian Museum, Calcutta.

In continuation of my letter No. 160 H., dated 28th May 1898, and with reference to your letter No. 43, dated 18th September 1897, I have the honour to inform you that the plant sent under the Registered No. 9948 has come into flower and proves to be **Scilla indica**, *Baker*. *Reg. No. 9948. Conf. with p. 236.*

APPENDIX XXIX. B.

No. 282 M., dated the 18th August 1898.

From—The Superintendent, Royal Botanic Garden, Calcutta,

To—The Secretary to the Indigenous Drugs Committee, and Reporter on Economic Products to the Government of India, Calcutta.

With reference to your No. 58, dated 19th November 1897, I have the honour to inform you that your Registered No. 10035 has this day come into flower and proves to be **Scilla indica**, *Baker*. *Reg. No. 10035. Conf. with p. 239.*

No. 66 H., dated the 18th April 1899.

From—The Superintendent, Royal Botanic Garden, Calcutta,

To—The Secretary to the Indigenous Drugs Committee, and Reporter on Economic Products to the Government of India, Indian Museum, Calcutta.

With reference to your No. 58, dated 19th November 1897, I have the honour to inform you that your Registered No. 10111, sent as "large variety of squills," has now come into flower and proves to be **Urginea indica**, *Kth.* *Reg. No. 10111. Conf. with p. 239.*

SQUILL BOMBAY.

APPENDIX XXIX C.

No 74 P., dated the 27th April 1898.

From—The Superintendent, Royal Botanic Garden, Calcutta,

To—The Reporter on Economic Products to the Government of India, Indian Museum, Calcutta.

Reg. No. 9660. Conf. with p. 212.

Referring to your letter No. 35, dated 24th July 1897, I have the honour to inform you that the first of the bulbs sent under the Registered No. 9660 and under the name **Urginea indica** has this day come into flower and proves to be **Pancratium triflorum**, *Roxb.*

APPENDIX XXIX. D.

No. 75 P, dated the 3rd May 1898.

From—The Superintendent, Royal Botanic Garden, Calcutta,

To—The Secretary, Central Indigenous Drugs Committee, Calcutta.

Reg. No 9660. Conf. with p. 212.

With reference to your letters Nos. 35, 37, 43, 58, 64, all on the subject of Squills, I have the honour to inform you that within the past three days all the examples of one of the kinds < bulbs that you have sent to be cultivated and determined have come into flower. The bulbs in question were forwarded with your letter No. 35, dated 24th July 1897, under the name **Urginea indica**; bore the Registered, No. 9660, and were noted as formerly used in the Medical Stores, Bombay. The plant proves to be **Pancratium triflorum**, *Roxb.*, so that it is not a Squill.

All the other examples sent are alive and healthy, and as they come into flower their names will be forwarded to you.

APPENDIX XXIX E.

No. 160 H., dated the 28th May 1898.

From—The Superintendent, Royal Botanic Garden, Calcutta,

To—The Reporter on Economic Products, and Secretary, Indigenous Drugs Committee, Calcutta.

Reg No. 9662. Conf. with p. 212.

With reference to your No. 35, dated 24th July 1897, I have the honour to inform you that the plant sent as **Crinum zeylanicum** under Register No. 9662 on 27th July 1897 has flowered and proves to be **Crinum latifolium**, *L.* But it is the variety with black anthers which Roxburgh named **C. moluccanum** and not the variety with pale yellow anthers to which the name **C. zeylanicum** is given.

APPENDIX XXIX. F. TO PARAS. 67 (*f*), 79, 95 AND 97 (7) OF THE REPORT. SQUILL BOMBAY.

No. 129 P., dated the 21st July 1898

From—The Superintendent, Royal Botanic Garden, Calcutta,

To—The Secretary to the Indigenous Drugs Committee, Indian Museum, Calcutta.

With reference to your letter No. 35, dated 24th July 1897, I have the honour to inform you that the plant sent as No. 4 under the name **Crinum asiaticum** has now come into flower and proves to be that species. *Reg. No. 9662 (a). Conf. with p. 242.*

APPENDIX XXIX. G.

No. 53 H, dated the 28th March 1899

From—The Superintendent, Royal Botanic Garden, Calcutta,

To—The Secretary, Indigenous Drugs Committee, Calcutta.

With reference to your letter No 35, dated the 24th July 1897, I have the honour to inform you that the bulbs sent under Register No. 9661 as **Ledebouria hyacinthoides** have at length come into flower. The majority of the bulbs prove to be **Urginea indica,** *Kunth.* One of them, however, is an **Amaryllis (A. equestris,** *Ait.*) *Reg. No. 9661. Conf. with p. 242.*

APPENDIX XXIX. H.

No. 100 P., dated the 27th May 1899

From—The Superintendent, Royal Botanic Garden, Calcutta,

To—The Honorary Secretary, Central Indigenous Drugs Committee

With reference to No. 43, dated 18th September 1897, from Mr. D. Hooper, addressed to Sir George King, I have the honour to inform you that the bulbs sent under Register No. 9820 have now come into flower and prove to be **Urginea indica,** *Kunth.* *Reg. No. 9820. Conf. with p. 238.*

APPENDIX XXIX. I.

No. 121 P., dated the 14th June 1899.

From—The Superintendent, Royal Botanic Garden, Calcutta,

To—The Honorary Secretary, Central Indigenous Drugs Committee.

With reference to your letter No. 58, dated 19th November 1897, I have the honour to inform you that the bulbs sent under Register No. 10036 have now come into flower and prove to be **Scilla indica,** *Baker*, and that a dried specimen will be forwarded to you in due course. *Reg. No. 10036. Conf. with p. 239.*

APPENDIX XXX. A.

Report by Mr. D. Hooper on Adhatoda Vasica.

At the meeting of the Indigenous Drugs Central Committee, held in the Indian Museum, August 2, 1898, I was requested to analyse the root-bark and the stem-bark in addition to the root and the leaves of **Adhatoda Vasica** so as to obtain a clearer idea of the distribution of the alkaloid in the plant.

It was reported at the meeting that the leaves up to the present had been the source of the alkaloid vasicine, and that an experiment with the root showed that it contained only traces of the alkaloid.

The various portions of the plant available in the Office of Reporter on Economic Products were, therefore, analysed with the following results:—

	Moisture.	Ash.	Spt. ext.	Vasicine.
Leaves .	7·9	20·0	13·3	·39
Bark .	10·2	14·0	14·4	·35
Root .	6·7	4·6	3·4	traces.
Root-bark.	5·8	12·4	11·2	·58

The alkaloidal content of the bark is here seen to approach very closely to that of the leaves. The question of cost in collecting these two products would have to be considered, and it is evident that the separation of the bark from the stems would entail more labour than the simple method of gathering the leaves from the shrub. In other medicinal shrubs, such as Buchu and Senna when the leaves are official, it is not customary to use the bark of the plants in addition to the leaves.

The root-bark is decidedly the richest portion of **Adhatoda** judging from an estimation made on the product collected in Bengal. The bark, however, does not form a large proportion of the root, and is not separated with ease. Two pounds of root carefully peeled and scraped from the wood yielded only 3¼ ounces of bark which is equal to 9·75 per cent. Since the woody interior portion of the root was free from bitterness and aroma, it might be considered medicinally inert, and, by calculating the amount of alkaloid on the entire root, the percentage of alkaloid reaches only ·05 per cent.

From these experiments it is left to the Committee to decide whether a further consignment of any other portion of the **Adhatoda** plant should be sent to the Medical Store-keeper for the manufacture of a tincture.

APPENDIX XXXX. B. TO PARA. 85 OF THE REPORT. CALOTROPIS. C. procera.

A Note on Calotropis procera by Mr. D. Hooper.

At the last meeting of the Central Indigenous Drugs Committee the subject of preparing a suitable tincture of Calotropis for distribution to the Local Committees came up for discussion. A supply of the root-bark of Calotropis procera collected in the hot weather from old and from young plants had been forwarded from Saharanpur, and it was decided that chemical experiments should be made with the two kinds of bark to ascertain which was richest in extractive matter soluble in alcohol. *Conf. with Report, pp. 8, 9, 11, 37, 46, 51, 55, 61.*

Although there is strong testimony in favour of the bark containing an actively-emetic principle which recommends it as a substitute for Ipecacuanha, there is little evidence to show what is the special ingredient in the drug which is the source of the medicinal activity.

Duncan in 1829 made a chemical examination of *mudar*, and the peculiar properties he referred to an extractive matter, soluble in water, termed mudarine. Flückiger and Hanbury (*Pharmacographia, p. 426*) were unable to separate the so-called mudarine, but obtained from a weak tincture of the bark an acrid resin and a bitter substance, the latter presumably the active principle. Warden and Waddell (1885) as the result of a very complete analysis of C. gigantea concluded that a yellow bitter resin was the active principle of the plant. It would seem, therefore, that to determine the comparative value of the barks it would be best to estimate the relative amounts of spirit extract.

The root-barks as received from Saharanpur were very similar in thickness and general appearance, the powdered bark from the younger plants was nearly white, that from the older plants was very light buff coloured.

The following results were obtained from quantitative experiments on the powdered barks :—

	From Young Plants.	From Old Plants.
Moisture . . .	12·1	10·2
Spirit extract . . .	15	16·2
Soluble in water . .	7·2	7·5
Resins . . .	7·8	8·7
Total Ash . . .	7·0	12·2
Sand . . .	2·8	7·2
Pure Ash . . .	4·2	5·0

It will be seen that the root-bark from the older plants has a higher percentage of acrid and bitter resinous matters than that from

the younger plants. In this connection attention should be drawn to a remark made some years ago by Moodeen Sheriff of Madras. In the Supplement to the *Pharmacopœia of India*, page 364, he reports that he found that the older the plant, the more active is the bark in its effects.

The *Pharmacopœia of India* directs (page 141) that mudar root be collected in the months of April and May for the preparation of the official powder. The drug supplied from the Saharanpur Gardens was collected also during the hot weather and will consequently meet the requirements of the above authority in this respect.

D. HOOPER.

30th August 1898.

APPENDIX XXX. C.

No. 1629, dated the 6th July 1898.

From—D HOOPER, Esq., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Officiating Principal, Civil Engineering College, Sibpur.

I have the honour to acknowledge, with thanks, the receipt of your letter No. 388, dated the 14th ultimo, and of the fresh plant in flower advised therein. I have examined the sample and find it to be correctly named by you as **Calotropis gigantea.**

No. 42-I. D C., dated the 8th May 1899.

From—GEORGE WATT, Esq, M.B, C.M, C.I E., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Principal, Civil Engineering College, Sibpur.

In continuation of this office letter No. 1629, dated the 6th July 1898, I have the honour to ask the favour of your being so good as to furnish me with one maund of the dried root-bark of **Calotropis gigantea** as indicated in my letter No. 95, dated the 4th May 1898. I very much regret that my office omitted to reply to the enquiry contained in the concluding sentence of your letter No. 388, dated the 14th June 1898, in which you were good enough to ask whether it was desired to have experiments made with this plant.

No. 62 F. S.—I. D. C., dated the 25th May 1899.

From—GEORGE WATT, Esq., M.B., C M, C.I.E, Reporter on Economic Products to the Government of India,

To—SIR FREDERICK ABEL, BART, K C.B, Imperial Institute, London.

I am despatching to your address six separate samples of the bark of **Calotropis procera**. This is one of the drugs at present

being investigated by the Indigenous Drugs Committee. A tincture and powder from one of these (*viz*., Reg. No. 11096-1) has been issued to certain selected hospitals and dispensaries for trial. The tincture as an alterative and alterative tonic, and the powder in the treatment of dysentery. The reports are coming to hand, and these, I think, may be spoken of as on the whole encouraging. The six samples sent to you were collected in order to ascertain the best age of the plant and the best season of the year for collecting the medicinal bark. I shall be deeply obliged if you can see your way to submit these samples to the Research Department of the Imperial Institute for chemical examination. They have been most carefully prepared, and a chemical examination of them would be of considerable value to India. **Calotropis** is one of the indigenous drugs most highly spoken of. If I recollect aright, **Professor Wyndham Dunstan** has already conducted several investigations into the fibre, floss and India rubber of this and the allied species **C. gigantea.** I trust, therefore, that I may be right in assuming that he may be glad to avail himself of the opportunity of looking into the subject of the relative amounts of the active principle present in the six sets of barks now forwarded to you.

No. 310, dated the 16th June 1899.

From—The Principal, Civil Engineering College, Sibpur,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

With reference to your letter No. 42-I. D. C., dated the 10th April 1899. I beg to forward to you dried root-bark of the **Calotropis gigantea.**

The cost of preparation was R12-9-0, and I shall be glad to receive the amount.

No. 80-I. D. C., dated the 30th June 1899.

From—George Watt, Esq., M B., C.M, C.I.E., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Officiating Principal, Civil Engineering College, Sibpur.

I have the honour to acknowledge, with thanks, the receipt of your letter No. 310, dated the 16th June 1899, and of the sample of root-bark of **Calotropis gigantea** therein advised.

I take the opportunity to point out that no information has been furnished as to the stage of the growth of the plant in question, nor the season during which the root-bark has been collected. As both these may have some importance in determining the active principle contained in the bark which it has now proposed to investigate, I

would be very much obliged if you can favour me with any information you may possess on the subject.

With reference to the request contained in paragraph 2 of your letter under reply, I beg to forward, by money order, the sum of R12-9-0, being the cost incurred in procuring the sample for this office and request the favour of your acknowledging the same at your convenience.

No. 539, dated the 11th July 1899.

From—The Principal, Civil Engineering College, Sibpur,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

In reply to your letter No. 80-I. D. C., dated the 30th June 1899, I have the honour to inform you that the root-bark of **Calotropis gigantea** supplied to you last month, were extracted from plants in flower in the months of April and May.

A formal receipt for R12-9-0, remitted by you on account of costs for extracting the bark, is enclosed herewith.

No. 173 F. S. S., dated the 20th June 1899.

From—SIR F. A. ABEL, BART., K.C.B, Honorary Secretary and Director, Imperial Institute, London,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., Reporter on Economic Products to the Government of India, Calcutta.

In reply to your letter of the 25th May (62 F. S.), I have to state that the six samples of **Calotropis procera**, to which it refers, will be submitted to examination in the Scientific and Technical Department of the Imperial Institute, as soon after their arrival as the condition of other work carried on for the Government of India under **Professor Dunstan's** direction will permit.

APPENDIX XXXI. A. TO PARAS. 74 AND 87 OF THE REPORT.

Selected Hospitals and Dispensaries.

No. 8700 G., dated Bombay, the 21st December 1898.

From—The Medical Store-keeper to Government, Bombay Command, Bombay,

To—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

Hospitals. Conf. with Report, pp 2, 43, 59; App., pp. 161, 168, 204, 219, 224, 255, 268, 355.

With reference to paragraph 3 of your No. 187-I. D. C. of 15th October (*see App., p. 268*) last, I have the honour to state that the following hospitals have been selected, at present, in which trials will be made of the indigenous drugs and preparations that will be forwarded here by you :—

Sir Jamshetji Jijibhai Hospital, Bombay.
St. George's Hospital, Bombay.
Civil Hospital, Poona.
" " Ahmedabad.
" " Hyderabad.

APPENDIX XXXI. B.

No. 36-I. D., dated Betul, the 22nd October 1898.

From—MAJOR H. E. BANATVALA, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, and Civil Surgeon, Betul,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

With reference to paragraph 5 of your letter No. 178 of 15th instant, I have the honour to forward herewith the list of Institution in these Provinces selected by the Local Committee for trial of indigenous drugs.

APPENDIX XXXI. B.

List of Institutions in the Central Provinces at which Indigenous Drugs are to be tried.

Serial Number.	Address.	Names of Institutions.	Name of Railway Station.
1	Civil Surgeon, Jabbulpur	Victoria Hospital	Jabbulpur.
2	" Nagpur	Mayo Hospital.	Nagpur.
3	" Nursing-pur.	Main dispensary	Nursingpur, G. I. P. Ry.
4	" Bilaspur .	Ditto .	Bilaspur, B. N. Ry.
5	" Raipur .	Ditto .	Raipur, B. N. Ry.
6	" Hoshang-abad.	Ditto .	Hoshangabad, I. M. Ry.
7	" Wardha .	Ditto .	Wardha, G. I. P. Ry.
8	" Bhandara	Ditto .	Bhandara, B. N. Ry.

H. E. BANATVALA,
Civil Surgeon.

BETUL;
The 22nd October 1898.

APPENDIX XXXI. C.

No. 1776-43, dated Rangoon, the 25th October 1898.

From—LIEUTENANT-COLONEL G. T. THOMAS, I.M.S., Civil Surgeon, and Honorary Secretary, Local Indigenous Drugs Committee, Burma,

To—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, and Honorary Secretary Central Indigenous Drugs Committee, Indian Museum, Calcutta.

With reference to your letter No. 186-I. D. C., dated the 15th instant (*see App., p. 268*), I have the honour to give overleaf a list of Medical Officers supplied with the indigenous drugs.

A copy of your letter under reply is being forwarded to each Medical Officer named in the list.

TO PARAS. 74 AND 87 OF THE REPORT. SELECTED HOSPITALS.

List of Medical Officers.

1.	Civil Surgeon	Rangoon.
2.	Medical Officer, Central Jail	Ditto.
3.	Ditto Store-keeper	Ditto.
4.	Ditto Officer, Central Jail	Insein.
5.	Civil Surgeon	Mandalay.
6.	Ditto	Falam.
7.	Ditto	Thayetmyo
8.	Ditto	Moulmein.
9.	Ditto	Myingyan.
10.	Ditto	Toungoo.
11.	Ditto	Akyab.
12.	Ditto	Sagaing.
13.	Ditto	Bassein.
14.	Ditto	Maubin.
15.	Ditto	Prome.
16.	Ditto	Yamethin.
17.	Ditto	Bhamo.
18.	Ditto	Henzada.
19.	Ditto	Kyaukpyu.
20.	Ditto	Mogaung.
21.	Ditto	Sandoway.
22.	Ditto	Meiktila.
23.	Ditto	Shwebo.

G. T. THOMAS, *Lieut.-Col., I.M.S.*

APPENDIX XXXI. D.

No. 321, dated Shillong, the 29th October 1898.

From—LIEUTENANT-COLONEL R. N. CAMPBELL, M.D., I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Assam,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

With reference to paragraph 3 of your letter No. 185-I. D. C., dated the 15th October 1898, I have the honour to submit herewith a list showing the selected dispensaries in which the trials of indigenous drugs are to be made in this Province.

SELECTED HOSPITALS.

APPENDIX XXXI. D.

List of Selected Dispensaries in which the Trials of Indigenous Drugs are to be made in Assam.

No.	Dispensaries.	Address.
1	Charitable Dispensary	Shillong.
2	Jail Hospital	Ditto.
3	Police Hospital	Ditto.
4	Regimental Hospital, 42nd Gurkha Rifles .	Ditto.
5	Charitable Dispensary	Dhubri.
6	Ditto	Gauhati.
7	Ditto	Tezpur.
8	Ditto	Debrugarh.
9	Ditto	Sibsagar.
10	Ditto	Tura.
11	Ditto	Nowgong.

R. N. CAMPBELL, *Lieut.-Col, I.M.S.,*
Hon. Secy., L. I. D. Committee, Assam.

The 29th October 1898.

APPENDIX XXXI. E.

[*For letter giving list of Madras Hospitals, see page 355*]

APPENDIX XXXI. F.

Dated Lahore, the 12th May 1899.

From—CAPTAIN D. W. SUTHERLAND, M.B., I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Panjab,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

Letter No. 28, see page 367.

In reply to your No. 28-I. D. C. of 29th March, I have the honour to state that the Panjab Local Committee suggest the following hospitals and dispensaries of the Panjab for experiment with indigenous drugs :—

Mayo Hospital, Lahore.

Civil Hospitals of Peshawar, Delhi, Amritsar, Rawalpindi, Mooltan, Gurdaspur, and Dharmsala.

Arrangements will be made for supplying each of these places with samples of the indigenous drugs sent to me.

APPENDIX XXXII. A. TO PARAS. 66 AND 88 OF THE REPORT.

Provisional List of Indigenous Drugs.

Nos. 47-49-I. D. C., dated the 15th April 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretaries, Local Indigenous Drugs, No. 47, Madras; No. 48, Burma; and No. 49, Bombay.

Previous communications:

In continuation of this office letter No. ,* dated 28th September 1897, I am directed to ask the favour of your being so good as to let me know, at your earliest convenience, whether your Committee have any further suggestions or alterations to make to the Provincial List of Drugs which will be found in Appendix XIV., pages 73 to 76 of the Indigenous Drugs Committee's Report.

Conf. with Report, pp. 9, 18, 23, 26 9, 34, and 53; App., pp. 201-210; 255; 280-82.

i.e., 179-181 of the present report.

* Continuation Nos.
Burma, No 51, dated the 28th September 1897. (*Conf., p. 201*).
Bombay, No. 46, dated the 28th September 1897.
Madras, No. 47, dated the 28th September 1897 (*App., p. 201*).
Also No. 93, dated 20th April 1898. (*App., p. 250*).

A formal reply is necessary to allow of the list being recorded as finally accepted throughout India.

APPENDIX XXXII. B.

No. G. 2611, dated Bombay, the 25th April 1899.

From—The Medical Store-keeper to Government, Bombay Command, Bombay,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

No Suggestions.

With reference to your No. 49-I. D. C., dated 15th instant, I have the honour to state that this Committee has no suggestions or alterations to make to the Provincial List of Drugs detailed in Appendix XIV., pages 176 to 182 of the Indigenous Drugs Committee's Report.

Report, p. 34, App., pp. 211-12. i.e., 179-81 of the present Report.

APPENDIX XXXII. C.

No. X I, dated Medical College, Madras, the 5th May 1899.

From—MAJOR F. J. CRAWFORD, M.D., I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Medical College, Madras,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Indian Museum, Calcutta.

In reply to your letter Nos. 47-49-I. D. C., dated 15th April 1899, I have the honour, by direction, to inform you that the Madras

PROVISIONAL LIST.

APPENDIX XXXII. C.

Conf with App., pp. 280-82.

Committee has no further alterations or additions to make besides what they have already alluded to in their letter, dated 6th May 1898, and Proceedings of Madras Committee, dated 28th April 1898, duly communicated to you.

APPENDIX XXXII. D.

No. 87-42, dated Rangoon, the 2nd May 1899.

From—CAPTAIN C. DUPR, I.M S., Honorary Secretary, Local Indigenous Drugs Committee, Burma, Rangoon,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Indian Museum, Calcutta.

No Suggestions.

i.e., 179-84 of the present report.

In reply to your letter No. 48-I. D. C., dated the 18th April 1899, I am directed to inform you that the Committee has no suggestions or alterations to make to the Provincial List of Drugs which is given in Appendix, pages 177 to 182, of the Indigenous Drugs Committee's Report.

APPENDIX XXXIII. TO PARA. 89 OF THE REPORT.

No. 1810, dated Calcutta, the 4th January 1899.

From—The Medical Store-keeper to Government, Bengal Command, Calcutta,

To—The Officiating Reporter on Economic Products to the Government of India, Calcutta.

Fluid Extracts.

Conf with Report, pp 8 11, 17 and 54, 71. App. pp. 170 81.

With reference to the reports of the analysis of the indigenous drug **Adhatoda Vasica** received with your Circular No. 198-I. D. C., I agree generally with the statement contained therein, that whilst the root-bark of the drug would be most suitable for pharmaceutical purposes, the cost of collecting it renders its use prohibitive. It, however, appears to me that the tincture sent out for clinical trial is not the best preparation that could be used. It is possible that, given in ordinary tincture dose of about one drachm or so, it may not produce much effect. Should the clinical reports, hereafter be received, prove this to be so, I would suggest that a fluid extract, of which one part represents one part of the leaves, be used instead. The cost of preparing this would be no greater than in the tincture, on account of the smaller proportion of spirits used, and it would be a far stronger and more satisfactory preparation altogether.

DOSES OF PREPARATIONS.

APPENDIX XXXIV. A.

Doses of Supplied Preparations.

No. 8866 G., dated Bombay, the 29th December 1898.

From—The Medical Store-keeper to Government, Bombay Command, Bombay,

To—D. Hooper, Esq., Officiating Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

With reference to correspondence ending with this office No. G. 8700, of 21st instant, I have the honour to request the favour of your kindly informing me in what doses the preparations sent here for trial have to be administered. This information has been asked by some of the charges to which the drugs in question have been forwarded for trial, and it would be well if this information were furnished with each drug sent here for distribution.

APPENDIX XXXIV. B.

No. 1, dated the 4th January 1899.

From—D. Hooper, Esq., Officiating Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Medical Store-keeper to Government, Bombay Command, Bombay.

In reply to your No. G. 8866, dated 29th December 1898, I have the honour to make the following remarks on the doses of the trial preparations of indigenous drugs recently supplied to you.

The question of doses is one which needs to be settled during the course of the present inquiry, which has for its chief object the action of the drugs. Since the question, however, has been raised at this stage, I have consulted the President of the Central Committee who desires me to issue the following suggestions for the guidance of the Local Committees.

With regard to the tinctures of **Alstonia, Adhatoda, Calotropis, Picrorhiza,** the President considers that they might be administered as the non-poisonous tinctures of the present British Pharmacopœia, *viz.*, in doses of from ½ to 1 fluid drachm.

TO PARA. 91 OF THE REPORT.

DOSES OF PREPARATIONS.

The Podophyllin prepared from **Podophyllum Emodi** should be given in the same dose as the resin prepared from the American root, which is ¼ grain as a minimum and 1 grain as a maximum.

It has also been suggested with regard to the powdered root-bark of **Calotropis procera,** that the directions in Rai Bahadur Kanny Lall Dey's book on Indigenous Drugs might be safely followed The doses given in this work are, as an alterative, 3 to 10 grains; as an emetic, 30 to 60 grains; and as a substitute for Ipecacuanha in dysentery, 5 to 20 grains.

If any of the Committees consider it desirable to deviate from the above limits, it is hoped that the reasons for doing so will be stated in the reports.

Letters Nos. 2 to 8 of I. D. C., dated the 4th January 1899, *viz.*—

Copy to each undermentioned Local Committees for information:—

List of the Hony. Secs. of Local Committees.

Honorary Secretary, Local Indigenous Drugs Committee, Medical College, Calcutta, letter No. 2, dated the 4th January 1899.

Assistant Surgeon E. Thomas, Honorary Secretary, Local Indigenous Drugs Committee, North-West Provinces, Agra, No. 3, dated the 4th January 1899.

Captain W. D. Sutherland, Honorary Secretary, Local Indigenous Drugs Committee, Panjab, Lahore, No. 4, dated the 4th January 1899.

Lieutenant-Colonel R. N. Campbell, Honorary Secretary, Local Indigenous Drugs Committee, Assam, Shillong, No. 5, dated the 4th January 1899.

Major H. E. Banatvala, Honorary Secretary, Local Indigenous Drugs Committee, Central Provinces, Betul, No. 6, dated the 4th January 1899.

Lieutenant-Colonel G. T. Thomson, Honorary Secretary, Local Indigenous Drugs Committee, Burma, Rangoon, No. 7, dated the 4th January 1899.

Honorary Secretary, Local Indigenous Drugs Committee, Medical College, Madras, No. 8, dated the 4th January 1899.

APPENDIX XXXV. A.

Malwa Oil for Medicinal Purposes.

No. 286 D., dated the 23rd September 1898.

From—T. H. HENDLEY, Esq., Inspector General of Civil Hospitals, Bengal,

To—The President of the Indigenous Drugs Committee, Calcutta.

I have the honour to forward the accompanying copy of a letter No. 1865 B., dated the 12th instant, and enclosures, from the Officiating Secretary to the Board of Revenue, regarding the utilisation of Malwa Oil for medical purposes, and to request that you will be so good as to favour me by an early date with your opinion in the matter.

APPENDIX XXXV. B.

No. 1865 B., dated Calcutta, the 12th September 1898.

From—E. M. KONSTAM, Esq., I.C.S., Officiating Secretary to the Board of Revenue, Lower Provinces,

To—The Inspector General of Civil Hospitals, Bengal.

I am directed to forward herewith an extract, paragraph II, from a note by Mr. G. M. Gregory, Officiating Factory Superintendent, Benares Opium Agency, dated the 29th July 1898, regarding the utilisation of Malwa Oil, and to enquire whether you approve of the suggestion that the oil should be kept in reserve to meet requirements of Civil Surgeons, and, if so, to request that you will issue instructions to Civil Surgeons or the Factory Superintendent, Bihar Opium Agency.

APPENDIX XXXV. C.

Extract from a Note by Mr. G. M. GREGORY, *Officiating Factory Superintendent, Benares Opium Agency,—dated the 29th July 1898.*

Paragraph II, Malwa Oil.—The utilisation of this oil was discussed with Dr. Owen. The oil is obtained from the Malwa Opium received for Abkari purposes. Until a year ago, it was utilised at the Ghazipore Factory for pitch-boiling purposes in the place of common oil. At the Patna Factory it is still used for that purpose. According to Native ideas the oil was supposed to possess valuable medical properties as an embrocation or liniment. Analysis has

shown that the oil, which has been in prolonged admixture with opium, has certainly carried away from the opium a small portion of Narcotine. Morphia has not been traceable while the density and odour of the oil points undoubtedly to the belief that a very appreciable quantity of the soluble resinous constituents of opium has also been withdrawn. The Civil Surgeon of Ghazipore, who was supplied with this oil at the price of common oil, was induced to conduct some experiments with it in his hospital. He was so far satisfied with the value of these experiments that he reported the circumstances to the Inspector General of Civil Hospitals, North-West Provinces, and that officer brought it to the notice of all Civil Surgeons in the North-West Provinces and Oudh by the issue of the circular letter. The use of the oil for pitch-boiling purposes has been stopped, and it is now issued on indent to Civil Surgeons for the use of their dispensaries and hospitals. Up to the 31s tMarch the oil was issued at 4 annas per pound *plus* packing charges. At the suggestion of the Civil Surgeon of Ghazipore the oil is now being filtered before issue, and the price from the 1st April 1898 has been raised to R5 per tin of 10℔, for the filtered oil, including packing charges. Up to date the Ghazipore Factory has issued 309½℔ of this oil. Compared with the value of oil for pitch-boiling purposes our sales to the Civil-Surgeons represent a small profit, but it is not in this light that the matter must be viewed. We were practically wasting a substance containing medical properties which the Medical Department are now eager to buy up and utilise at their hospitals. As the demand for the oil at the Ghazipore Factory was likely to be greater than the quantity we shall have available, I enquired from Dr. Owen if he would have any objection to our taking over the Malwa oil from the Patna Factory for the purpose of filtering and issuing to the Medical Department instead of their using it for pitch-boiling, for which any common bazar oil would answer.

Dr. Owen wished to refer the question to the Bengal Medical authorities to whom the oil might be as useful as it is to the North-West Provinces Civil Surgeons, in which case he would prefer issuing it direct from his factory. If, however, the Bengal Medical Department refused to have anything to do with it, then he would have no objection to making the oil over to us for issue to the hospitals of the North-West Provinces, whether the oil be issued by the Ghazipore or the Patna Factory. I would recommend the question being kept under consideration in the interests of the Medical Department, which should be allowed to take all the available quantity instead of it being wasted on pitch-boiling.

STANDARD SAMPLES.

Conf. with pp. 31, 59, 56, 77, 96-97, 170.

APPENDIX XXXVI. A.

Selection of Standard Samples of Indigenous Drugs.

No. 52-I. D. C., dated the 19th April 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Under-Secretary, Revenue and Agriculture Department.

I have the honour to reply to your reminder No 1142, dated the 14th April, and to say that the delay in submission officially of my suggestions regarding the Imperial Institute quarterly report, arose from my being under the necessity (as Secretary to the Central Indigenous Drugs Committee) to obtain their authority for my proposals.

2. I am now directed by the President and Members of that Committee to lay the following circumstances and recommendations before the Government of India for favourable consideration:—

(*A*) The attention of the Committee was drawn by the Secretary to the following passage in the report of the twenty-seventh meeting of the Indian Sub-Committee of the Imperial Institute, *viz.*, paragraph 165, as follows:—The Curator read a letter from Dr. Leech (Professor of Materia Medica at Owen's College, Manchester) stating that he had recently visited the Indian Section in order to examine certain drugs, for purposes connected with the proposed issue of an Indian Appendix to the British Pharmacopœia, and asking that the Materia Medica Museum of the Owen's College might be supplied from time to time with any spare specimens of drugs, not already included in its collection. "The Committee expressed their desire to meet Dr. Leech's wishes as far as possible."

(*B*) The Government of India, in the Home Department, having recently placed before the Central Indigenous Drugs Committee certain papers connected with a proposed Indian Addendum to the British Pharmacopœia, the issues raised are under consideration and will very shortly be reported on to the Government of India.

(*C*) The Indigenous Drugs Central Committee in the proceedings of their eighth meeting (paragraph 62) have resolved that from the stock of each medicinal product

STANDARD SAMPLES.

investigated, a quantity should be reserved sufficient to afford a standard sample for each Local Committee. It was felt that such standards might be found of considerable value in the future, and that, as types for our Medical Schools, they would be invaluable.

Conf. also para 86 of the Eleventh Meeting.

3. I am accordingly directed to say that, while fully conscious of the value of the operations both of the Research Department of the Imperial Institute in London and here in India of the Reporter on Economic Products, in exploiting the Drugs of India, they are anxious that it should be clearly understood that Indian Indigenous Drugs presently shown at the Institute or elsewhere should not be regarded as authoritative unless issued under their own orders. I am desired to explain that a sample of "bel" fruit (**Ægle Marmelos**) may be correctly so named and yet be unsuitable for medicinal purposes. Museum teaching samples require to be the actual product and condition of the product, used in the preparation of medicines. It does not follow, therefore, that the sample of "bel" fruit furnished by the Reporter on Economic Products to the Imperial Institute, need be the actual medicinal article.

Conf. with Report, pp. 8, 11, 17 [illegible] 61.

4. I am further to explain that experiments conducted in the Chemical and Materia Medica Laboratories of our home Universities and Medical Schools would assist very greatly the work entrusted by the Government of India to this Committee. But they would prefer, should the Government of India see no objection, that authentic samples of the drugs under investigation by them should from time to time be sent to the Imperial Institute for distribution to such European Medical Schools as may desire typical sets, rather than that such Medical Schools should be encouraged to regard accidental contributions that may appear to fill up vacancies in their Museums, as thereby originating collections of Indian Indigenous drugs upon which definite opinions could be formulated regarding an Indian Appendix to the British Pharmacopœia.

5. I am accordingly, and in conclusion desired to suggest to the Government of India that the Indian Sub-Committee of the Imperial Institute might be informed that a surplus stock exists in India of the raw materials which have actually been employed in the preparation of the drugs now being therapeutically tested in India, and that if the Indian Sub-Committee of the Institute so desire, a quantity of each sufficient to meet a moderate distribution amongst the Medical Schools of Great Britain can be immediately supplied. I am further to add that, should experts in the field of physiological research desire to investigate any one of these drugs (or others as taken up in the

future for enquiry), the Central Indigenous Drugs Committee would be glad to furnish the necessary extra quantity of the drug or drugs in question and would very highly appreciate co-operation in that direction.

APPENDIX XXXVI. B.

No. 49, dated Glasgow University, the 19th June 1899.

From—RALPH STOCKMAN, Esq.,

To—DR. G. WATT, C I.E., Honorary Secretary, Indigenous Drugs Committee, Economic and Art Museum, Calcutta.

With reference to a conversation which I had with you when you were last in this country, may I ask you to be so kind as to forward to the Materia Medica Department of this University specimens of any Indian drug which you think may be of sufficient interest.

We have no specimens of any Indian drug except those official in the British Pharmacopœia, and I would specially like, if it be possible to send them to us, samples of the different kinds of Indian opium.

APPENDIX XXXVI. C.

No. 3190-5-8, dated Simla, the 18th September 1899.

From—E. MACONOCHIE, Esq., I.C.S., Under-Secretary to the Government of India, Department of Revenue and Agriculture,

To—The Honorary Secretary, Indigenous Drugs Committee, Calcutta.

I am directed to forward the accompanying copy of a letter, dated the 4th August 1899, from the Honorary Secretary and Director, Imperial Institute, London, regarding the supply of samples of drugs for the purposes of the Indian Section of the Institute, and to request that it may be laid before the Committee for information.

Dated London, the 4th August 1899.

From—The Honorary Secretary and Director, Imperial Institute, London,

To—The Under Secretary to the Government of India, Department of Revenue and Agriculture.

I have communicated with the Indian Sub-Committee of the Imperial Institute on the subject of your letter of the 25th May, with

which you forwarded a copy of a letter from Dr. Watt, the Honorary Secretary of the Central Indigenous Drugs Committee, dated the 19th April 1899, regarding the supply to the Indian Sub-Committee of samples of drugs for the purposes of the Indian Section of the Institute.

As it would appear from the letter in question that the statements contained in Dr. Watt's letter originated with him, it is to be regretted that the subject was not discussed by him with the Committee during his recent visit to England,—at which time he was temporarily a Member of that Committee.

There has been no ground whatever for entertaining any doubt, up to the present time, that all the drugs sent for exhibition in the Indian Section were properly authenticated samples of indigenous drugs, and were supplied as suitable for purposes of scientific examination.

It is certainly very unfortunate that this question has not been raised at an earlier date, as it would now appear that the materials included in the Indian Collections at the Imperial Institute—which represent the indigenous drugs of India, and contributions to which have from time to time been forwarded by the Reporter on Economic Products for exhibition and for scientific examination are not to be relied upon as properly representing the products in question, in the form and condition in which they are officially recognised by the Central Indigenous Drugs Committee. It is obvious that no doubt should exist as to the samples of drugs supplied to the Collections of the Imperial Institute being thoroughly representative of the drugs authenticated by the Central Indigenous Drugs Committee; and it is therefore certainly necessarily that that Committee should be instructed or authorised to supply from their surplus stock, at their convenience, suitable quantities of the raw materials which have actually been, or are being, employed in the preparation of drugs now in course of being therapeutically tested in India.

It is, moreover, very important that the Scientific Department of the Imperial Institute, in which important investigations are being continually carried out in the interests of the Government of India should be kept informed of the work carried out, or contemplated, by the Central Indigenous Drugs Committee; and that these two organisations should co-operate thoroughly, with the view of obtaining and recording accurate information with reference to the supply, the therapeutic action, and the exact medicinal value, of indigenous Indian drugs.

I am informed by the Chairman of the Indian Sub-Committee that, when supplies of drugs which may be made by the Indigenous

STANDARD SAMPLES

APPENDIX XXXVI. C.

Drugs Committee to the Imperial Institute are received in sufficient quantity, old specimens will be replaced by them, and that care will be taken to issue to Scientific Institutions and other authorities, samples from new and certified supplies only.

Sir Steuart Bayley states, also, that although possibly the old specimens of Indian drug materials included in the collection at the Institute may have deteriorated from long exposure to London air, the Indian Committee have reason to believe that, apart from such deterioration, the samples in question are good and trustworthy specimens of the indigenous drugs they are supposed to represent, as they were collected and sent home under skilled agency, very similar to that employed by the Indigenous Drugs Committee.

APPENDIX XXXVI. D.

No. 14-I.D.C., dated the 13th February 1900.

From—DR. G. WATT, C.I.E., Honorary Secretary, Indigenous Drugs Committee, Economic and Art Museum, Calcutta,

To—The Under-Secretary to the Government of India, Department of Revenue and Agriculture.

I have the honour to reply to your letter No. 3190-5-8 of the 18th September, and its enclosure, *viz.*, a letter from Sir F. A. Abel, dated 4th August 1899, on the subject of this Committee's offer to supply the Imperial Institute with authentic duplicates of the *actual* drugs experimented with by the Committee or investigated under their orders by experts specially selected for that purpose.

2. I am to say that the Indigenous Drugs Committee have practically nothing further to communicate than is contained in their letter No. 52, dated the 19th April 1899. My Committee, however, desire me to point out that, that letter was framed in Committee and accordingly that Sir F. A. Abel is under a misapprehension in thinking the statements contained in it "originated with Dr. Watt" personally. As stated in that letter, the Central Indigenous Drugs Committee are very pleased to add the name of the Research Department of the Imperial Institute to their already extensive list of Professors, Museums, and Institutions to which they are issuing directly, authentic duplicates of the drugs under investigation,

Conf. with p. 308.

APPENDIX XXXVII. A. TO PARAS. 97, 98 AND 114. OF THE REPORT. INDIAN ADDENDUM.

Indian Addendum to the British Pharmacopœia.

Conf with pp. 59-65; 67-71; 83 90; 489-91.

No. 381, dated Calcutta, the 6th March 1899.

From—R. NATHAN, Esq., I.C.S., Under-Secretary to the Government of India, Home Department.

To—The President, Indian Indigenous Drugs Central Committee.

I am directed to forward a copy of a Revenue despatch from the Secretary of State for India, No. 7, dated the 12th January 1899, and enclosures, regarding a letter from the Council of Medical Education, asking for criticism from Indian Medical Authorities upon the Indian Addendum to the British Pharmacopœia of 1898. I am to request that, after consultation with the Provincial Committees, the Government of India may be furnished, as early as possible, with such criticisms and suggestions in connection with the Addendum as the Indigenous Drugs Central Committee may consider necessary for the purposes of rendering the proposed Addendum suitable for the requirements of India.

Reply, see p. 317.

No. 7, dated India Office, London, the 12th January 1899.

From—The Secretary of State for India,

To—The Government of India.

I forward copy of a letter * from the Council of Medical Education, asking for criticisms from Indian Medical Authorities upon the Indian Addendum to the British Pharmacopœia of 1898, I enclose also copy of the reply† I caused to be sent to the Society.

* Dated 16th December 1898 with 20 copies of enclosure.

† Dated 11th January 1899.

Dated London, W., the 16th December 1898.

From—The President of General Medical Council, 299, Oxford Street, London,

To—His Grace the DUKE OF DEVONSHIRE, K.G., Lord President of the Privy Council.

1. In accordance with a resolution passed by the General Medical Council, I have to ask Your Lordship's aid in connection with a project for the production of a British Pharmacopœia, which shall be adapted to the wants of India and the Colonies as well as to Great Britain and Ireland. I may point out that on a previous occasion the Lord President of Her Majesty's Privy Council co-operated with the Medical Council in furthering the realization of this project.

2. On the 12th November 1891, official reports were sent to the General Medical Council by the Secretary of State for India, showing that certain drugs described in the British Pharmacopœia

might, in the Indian Empire, be usefully substituted by drugs indigenous to India, and that certain medical compounds employed there, might be advantageously prepared according to altered and amended formula.

3. The Medical Council took the matter into consideration, and deeming the subject of interest to other parts of the Empire, as well as India, instructed the President of the Medical Council, the late Sir Richard Quain, to request the Lord President of Her Majesty's Privy Council to submit to the Medical and Pharmaceutical Authorities in India through the Secretary of State for India, and to the Colonial and Medical and Pharmaceutical Authorities through the Colonial Office communications from the Medical Council inviting suggestions for additions to, and alterations in, the British Pharmacopœia which might be better to adapt it for use in India and the Colonies. This instruction Sir Richard Quain carried out in letters to the Lord President, dated October 17, 1893.

4. In accordance with this request the Marquess of Ripon addressed a circular despatch to the Governors of all the British Colonies requesting them to bring the subject under the notice of the Medical Authorities, and to invite their co-operation with the Medical Council, and during the years 1894 and 1895, 28 replies were received from the Indian and Colonial Authorities containing a very large number of suggestions.

5. During 1896 and 1897 the Medical Council were actively engaged in the production of the British Pharmacopœia of 1898 in which were incorporated a large number of the suggestions thus made, but it was thought desirable that the new remedial agents suggested by the Indian and Colonial Authorities should be included in an Addendum to be issued after the Pharmacopœia had been published. After the publication of the Pharmacopœia in April 1898, the Council prepared a report on the drugs which had been suggested by the Indian and Colonial Authorities, a copy of which I have the honour to inclose to Your Lordship.

6. I have now respectfully to ask Your Lordship to submit to the Medical and Pharmaceutical Authorities in India through the Secretary of State for India and to the Colonial Authorities through the Colonial Office, copies of the report and further to ask Your Lordship to invite the Authorities in India and the Colonies to co-operate with the Medical Council by forwarding to it such criticisms and suggestions in connection with the report as they may consider necessary for the purpose of rendering the proposed Addendum suitable for the requirements of India and the Colonies. I may add that the Medical Council propose to ask for the co-opera-

tion of certain Medical and Pharmaceutical experts in India and the Colonies in addition to those connected with the respective Governments, unless Your Lordship expresses any objection to this course being taken.

No. R. & S. 3034, dated India Office, the 11th January 1899.

From—SIR A. GODLEY, Under-Secretary of State for India,
To—The President, General Medical Council, 299, Oxford Street, London, W.

With reference to your letter to the Lord President of the Council, dated 16th December 1898, on the subject of the Indian additions to the British Pharmacopœia of 1898, I am directed to say that Lord George Hamilton will send copy of your letter to the Government of India, in order that the remarks of Medical authorities in India may be obtained upon the proposed Indian Addendum.

I am to ask that 20 spare copies of the Addendum may be sent for transmission to India.

APPENDIX XXXVII. B.

No. 29 I. D. C., dated the 23rd March 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., Reporter on Economic Products to the Government of India, and Honorary Secretary to the Indigenous Drugs Committee, Calcutta,

To—R. NATHAN, Esq., I.C.S., Under-Secretary to the Government of India, Home Department.

Your letter No. 381 of the 6th instant, also Her Majesty's Secretary of State's Despatch No. 7 (Revenue) of the 12th January 1899, and its enclosure, on the proposed Indian Addendum to the British Pharmacopœia, were laid before the Indigenous Drugs Committee at their meeting of the 20th instant.

2. I am directed to say that the President and Members of this Committee, previous to the receipt of the papers above mentioned, had not heard of a Special Committee appointed some few years ago by the Government of India to enquire into the drugs of this country. Reference would appear to be made to some such Committee on page 4 and again on the subsequent pages (under the headings of the recommended Indian drugs) of the Addendum. I am accordingly desired to enquire whether the Government of India have any objection to the "three valuable reports" therein referred to being placed before the present Committee. It was felt that, without being

advised of the extent to which the Addendum represents the views of the former Indian Committee and also of the data upon which these views had been advanced, it would be unwise to offer any criticisms on the Addendum itself.

No. 755, dated the 4th May 1899.

From—R. NATHAN, Esq., Under-Secretary to the Government of India, Home (Medical) Department, Simla,

Reply, see opposite.

To—The Honorary Secretary, Central Indigenous Drugs Committee.

With reference to your letter No. 26 I. D. C., dated the 23rd March 1899, I am directed to forward, for the information of the Central Indigenous Drugs Committee, copies of the reports submitted by the Special Committee appointed by the Government of India in 1894 for the purpose of furnishing suggestions in connection with the preparation of a revised edition of the British Pharmacopœia.

(1) Letter from Surgeon-Major-General W. R. Rice, Surgeon-General with the Government of India, to the Military Department, No. 1692—5A., dated the 12th May 1894, and enclosures.

(2) From ditto to ditto, No. 2859—5D., dated the 2nd August 1894.

(3) Further Report by the President, Pharmacopœia Committee, on the suggestions by Dr. F. N. Macnamara.

2. The return of the papers when done with is requested.

APPENDIX XXXVII. C.

No. 1078, dated the 22nd June 1899.

From—R. NATHAN, Esq., Under-Secretary to the Government of India, Home (Medical) Department, Simla,

To—The Honorary Secretary, Central Indigenous Drugs Committee.

In continuation of the letter from this Department, No. 755, dated the 4th May 1899, I am directed to inquire when the Government of India may expect to receive the criticisms and suggestions of the Indian Indigenous Drugs Central Committee upon the Indian Addendum to the British Pharmacopœia of 1898, which were asked for in my letter No. 381, dated the 6th March last.

No. 87-I. D. C., dated the 5th July 1899.

From—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Under-Secretary to the Government of India, Home (Medical) Department, Simla.

In reply to your letter No. 1078, dated the 22nd June 1899, I am directed to say that the Committee hope to be in a position to

THE BRITISH PHARMACOPŒIA.

furnish their report very shortly. The delay that has occurred, I am desired to explain, is due mainly to the time required by the press in furnishing a copy of the Committee's Report and Appendices up to date which it is intended should be submitted as an enclosure to the Committee's reply to the Government of India's letter No. 755, dated the 4th May 1899, which called for the views of the Committee on the proposed Indian Addendum to the British Pharmacopœia.

APPENDIX XXXVII. D.

No. 10 I.D.C., dated Simla, the 22nd August 1899.

From—George Watt, Esq., M.B., C.M., C.I.E., etc., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—R. Nathan, Esq., I.C.S., Under-Secretary to the Government of India, Home (Medical) Department, Calcutta.

Conf. with further correspondence, pp. 489-91.

I am directed to inform you that the Central Indigenous Drugs Committee at their meeting of the 20th March and subsequently at their meeting of the 21st July, carefully considered your letter No. 381, dated the 6th March, with its enclosures, on the subject of the proposed Indian Addendum to the British Pharmacopœia of 1898.

2. I am desired by the President and Members of this Committee to submit, for the information of the Government of India, a proof copy of the Report of their Proceedings (with the Appendices thereto) down to and including the meeting of the 20th March.* In doing so I am to invite attention more especially to paragraph 97 of the Report which the Committee desire should be regarded as conveying the opinions of the members on some of the more important issues raised by your letter and its enclosures.

* Will follow at as early a date as possible.
G. Watt,
Hon. Secy.

3. I am further to remark that your second letter No. 755, dated the 4th May, and *its* enclosures, *viz.*, the Report of the Committee appointed by Government of India under letter No. 535-D. of the 27th January 1894, threw a new light on the proposed Indian Addendum. From these papers it would appear that the Committee of 1894 was not called upon to report on the indigenous drugs of India that might be recommended as substitutes for the drugs imported from Europe. Two months after submission of their Report, however, a list of Madras indigenous drugs reached the Committee. This was transmitted to the Government of India in original and without comment. Subsequently, in consequence of an application from the India Office, the Indian Committee furnished a *further report*, but they still made no reference to the Madras list of 38 indigenous drugs.

4. If that view of the case be correct, this Committee submit that it would appear that the Pharmacopœia Committee of the General Medical Council have inadvertently erred in regarding the Madras list as authorised by (in other words furnished as the result of the united deliberations of) the "Indian Government Committee of 1894." The Madras list is a valuable contribution of suggestions which, had it been utilised along with similar suggestions from each province in India might have resulted in the production of an Imperial list of suggestions. But neither the Madras list by itself nor any Imperial compilation could or should be made the sole justification of specific pronouncements on substitution of drugs of merely reputed for those of ascertained merit. The President and Members of the Central Indigenous Drugs Committee would, therefore, earnestly recommend the Government of India to draw the attention of the General Medical Council to these circumstances.

5. Reverting to paragraph 97 of this Committee's Report, I am desired to give special prominence to the remarks offered under sections (3) and (4). It will there be seen that this Committee are unable to offer opinions on any one drug or any selection of drugs the properties of which have not been established by chemical, therapeutical, and physiological tests. It might indeed almost be urged that that position is the very *raison d'etre* of the present Indigenous Drugs Committee's existence. The Government of India by their Resolution, No. $\frac{\text{18 Medical}}{\text{643-661}}$, dated the 31st July 1896, paragraph 2, section 4 (see Appendix to our report, page 163) accepted the view that it would be unwise to recommend the substitution of drugs of which the merit cannot be said to be fully established, in place of those the virtues of which are supported by the most careful and exhaustive evidence.

6. Acting on the powers conferred upon them by the Government, this Committee drew up a classified list of the drugs of India intended for initial investigation. Their Report, so far as it has gone, gives, in the opinion of this Committee, ample evidence of the value of their operations. It may be said to have transpired that one of the drugs that seems likely to prove of practical value to India (*Adhatoda Vasica*) is not given in the proposed Addendum. It is needless to speculate as to how often the future is likely to repeat this experience; the circumstance is mentioned as an additional evidence of our imperfect knowledge. It is probable that, by the time of the contemplated publication of the Imperial Pharmacopœia, this Committee may be in a position to make definite proposals as to Indian substitutes for European drugs. But, in further support of the undesirable-

THE BRITISH PHARMACOPŒIA.

-ness of any list being recommended now, it may be pointed out that the Honorary Secretary of the Madras Indigenous Drugs Committee was one of the authors of the Madras list of drugs (mentioned above) which has been accepted as the proposed Indian Addendum to the British Pharmacopœia. It will be seen from the Appendix to this Committee's Report (*pages 330 and 356*) that the Madras Committee in very significant terms have pronounced against reliance being placed on personal opinion in the selection of Indian substitutes for European drugs. I am accordingly desired to append to this paragraph,* for the information of the Government of India, copies of recent letters that have passed between the Central Committee and the Madras Committee on this very subject. (*Conf. with pp. 319-30*)

* Sent to Home Department, dated 25th August 1899.

G. WATT,
Hon. Secy.

7. In conclusion I am desired to say that, while this Committee refrain from offering any direct criticisms on the proposed Indian Addendum to the British Pharmacopœia, they are of opinion that if the General Medical Council cannot be persuaded to defer the publication of an Indian Addendum, their classified list (Appendix to the Report, pages 179-84) is very much to be preferred to that given in the proposed Indian Addendum to the British Pharmacopœia.

APPENDIX XXXVIII. E.

No 97 -I D.C. Indian Museum, Calcutta, the 2nd August 1899.

From—GEORGE WATT, Esq, M B., C.M. C.I.E., etc, Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee,

To—MAJOR F. G. CRAWFORD, M.D., I.M S., Honorary Secretary, Indigenous Drugs Committee, Madras.

ENCLOSURES.

A.—No. 26-I. D. C., dated 23rd March 1899, from this Office. (See Appendix to Central Indigenous Committee's Report, page 315.)

B.—No. 755, dated 4th March 1899, from Under-Secretary to Government of India. (See Appendix, page 316)

C—List of drugs indigenous to India, etc.

At the meeting of the Central Indigenous Drugs Committee held in Calcutta on the 21st instant, your letter No. 36, dated the 6th June, with its enclosure, *viz.*, the Report of the Proceedings of the Madras Committee, which met on the 29th May, was read and carefully considered.

AN INDIAN ADDENDUM TO

2. I am desired to reply that this Committee are in full sympathy with the difficulties mentioned in your Proceedings, *viz.*, the absence of the necessary leisure from official obligations to devote that attention which your Committee regard as essential to ensure satisfactory result with clinical investigations. I am to add that it was in consequence resolved to approach the Government of India with certain proposals having in view the amendment of the constitution of Provincial Committees in a manner calculated to correct the defect experienced, not alone in Madras, but practically throughout India.

See p. 491.

3. This Committee desire to record their unanimous approval of the view expressed in the concluding sentence of the Proceedings above cited, *viz.*, "The Committee do not think it yet too late to produce results of some value if one or two men were to be *now* appointed to sift the evidence as far as it has gone and then devote a few months to separating facts from pure opinion and truth from fiction." In this connection I am desired to submit, for the favour of the views and recommendations of the President and Members of your Committee, certain communications which have been received on the subject of the proposed Indian Addendum to the British Pharmacopœia of 1898.

4. You will observe from the Committee's letter No. 26-I. D. C. of the 23rd March, that it was considered essential before submission to Provincial Committees (in conformity with the orders of the Government of India) of the communications appended to this letter, that the Central Committee should, in the first instance, become possessed of full particulars regarding the supposed Indigenous Drugs Committee of 1894. I am to remark, for your information, that on perusal of the Report of the Committee of 1894 (furnished by the Government of India under cover of their letter of the 4th May last) it was discovered that this Committee were in error in supposing (as was done in their letter No. 26 of the 23rd March) that the Committee of 1894 had in any sense been an Indigenous Drugs Committee. It was convened apparently for the purpose of furnishing suggestions in connection with the preparation of a revised edition of the British Pharmacopœia. At the time in question the General Council of Medical Educationhad not specifically contemplated producing an Imperial Pharmacopœia, and, so far as can be discovered, did not, accordingly call for suggestions regarding the Indigenous Drugs of India that were thought worthy of inclusion in the then forthcoming new edition of the British Pharmacopœia.

5. The 1894 Indian Committee's Report (submitted to the Government of India under cover of Surgeon-Major-General W. R. Rice's

THE BRITISH PHARMACOPŒIA

letter No. 1692 of the 12th May 1894) "carefully considered the British Pharmacopœia in the light of their experience of the pharmacology and pharmacy of India." It offered suggestions on the compounding of five B. P. preparations by methods better suited to India than those in the British Pharmacopœia; recommended that Patna and Benares Opium should be admissible for preparations made in India; proposed that ground-nut oil should be allowed as a substitute for olive oil; and that Indian orange-peel be accepted in India for AURANTII CORTEX.

6. As an Appendix to their Report the Committee submitted two communications, one (dated the 17th April 1894) which contained 14 suggestions of omissions from, or modifications in, certain B. P. preparations, and the other (dated the 7th October 1891) furnished a recommendation for the introduction of Camphorodyne to be used in Diarrhœa and Dysentery. Lastly, in consequence of a reference from the Examiner of Medical Stores at the India Office, the Committee submitted a *Further Report* (letter No. 217, dated the 19th December 1894) that gives replies to 13 specific questions that had been submitted to them. Amongst others the following may be mentioned.— The substitution of Mutton Suet for Lard; the use of Indian Catechu; the use of Indian Poppy Capsules; the employment of locally grown Rose Petals; the suggestion of the use of the exudation from the "Chir" pine (**Pinus longifolia**) in place of THUS AMERICANA, etc., etc. It will thus be seen that even the *Further Report* of the Committee of 1894 takes no direct cognisance of the larger question of the substitution of Indigenous Drugs such as **Calotropis** root-bark for **Ipecacuanha**.

7. By letter No. 121, dated the 12th July 1894 (thus exactly two months subsequent to the date of the official submission to the Government of India of the 1894 Committee's Report), **Surgeon-Lieutenant-Colonel W. Price, M.D.**, Principal, Medical College, Madras, forwarded a Report (dated 25th June) which had been drawn up by yourself as Professor of Materia Medica in conjunction with **R. Hollingsworth, Esq.**, Lecturer on Botany. The report was submitted to the Government of India *in original* by **Surgeon-Major-General W. R. Rice, M.D., C.S.I.**, on the 2nd August 1894. No remarks were made by him nor by the Committee on the suggestions and recommendations contained in these Madras communications, nor were these alluded to by the Committee in their subsequent *Further Report*. The Madras Report, it may be here remarked, was referred to three tables which are described as follows:—"Table (A) gives a rough list of the drugs indigenous to India and unofficinal at present, which we

AN INDIAN ADDENDUM TO

think of sufficient value to be admitted to the Imperial Pharmacopœia as equivalent to certain stated ones which are not indigenous to India."

"Table (B) gives a list of suggestions for the preparation of medicinal compounds, substituting the drugs in Table (A) for the corresponding ones not indigenous in India."

"Table (C) gives some suggestions for the elimination of certain drugs which appear to us of little value from officinal formulæ."

"Our work was chiefly occupied with tables (A) and (B), being concerned with drugs with which we have actual acquaintance, by reference to books and other sources. The list was much longer in the first instance, many drugs of value growing in India being completely ignored in the British Pharmacopœia, but we have cut it down to its present limit for obvious reasons."

See pp. 325-28

8. I am desired to furnish you (as a matter of convenience) with a copy of the list of indigenous drugs given as Table (A) of the above quoted communication. In doing so I am to ask you to be so good as to formally place that list before your Committee (if this has not already been done) with a view to their favouring the Central Committee with certain definite information. To make the requirements of the Central Committee perfectly clear, I am to state the position of affairs as precisely as possible. The following facts may, therefore, be mentioned.—

See p. 281.

(*a*) The Proceedings of the Madras Committee (Meeting of the 28th April 1898) suggested the addition of four drugs to the Central Committee's Provisional Classified List (recorded in Appendix XIV of their Proceedings). Of the four proposed additions, one, namely, **Hardwickia pinnata),** does not occur in the list that constitutes Table (A) above.

(*b*) It will also be found that the list of Indian drugs given in the proposed Addendum to the British Pharmacopœia, shows all the articles enumerated in Table (A) except three, *viz.*, **Areca Catechu,** extract; **Scilla indica** and **Urginea indica,** the Indian squills. It is a little difficult to understand the omission of the two forms of Indian squills and the substitution for these of the adulterant—**Crinum asiaticum**—a drug of which nothing whatever is known, except that it is not a squill. The Addendum, moreover, adds six drugs to the original Madras list, namely; **Anogeissus latifolia,** gum; **Arachis hypogæa,** oil; **Citrus Aurantium,** peel; **Mylabris phalerata,** beetles; and **Pinus longifolia,** oleo-resin. Most of these articles appear, however, to have been mentioned in the other Indian papers to which allusion has been made, and seem to have

THE BRITISH PHARMACOPŒIA.

been added from the impression that by doing so the Madras list might be regarded as applicable to the whole of India.

(c) I may next point out that both the Addendum and the Madras list contain eighteen reputed medicinal products that do not occur in this Committee's Classified List, *viz.* :—

1. **Coscinium fenestratum.**	10. **Aristolochia indica**
2. **Exacum bicolor.**	11. **Cinnamomum glanduliferum.**
3. **Samadera indica.**	12. **Cissampelos Pareira.**
4. **Swertia affinis or S. corymbosa.**	13. **Citrus Aurantium.**
5. **Valeriana Leschenaulti.**	14. **Crinum asiaticum.**
6. **Cæsalpinia Sappan.**	15. **Gossypium Stocksii *var.* herbaceum.**
7. **Garcinia Morella.**	16. **Jasminum Sambac.**
8. **Abrus precatorius.**	17. **Piper Betel.**
9. **Acacia arabica (bark).**	18. **Toddalia aculeata.**

The first five of the above enumeration are so essentially South Indian products (if not the first seven), that in the opinion of the members of this Committee they could with great difficulty be procured outside the Madras Presidency. **Gossypium Stocksii** is an exceedingly rare plant that hardly existed in the herbaria of the world ten years ago. It is confined to the rocky coast near Karachi and is not sold in the bazaars of India anywhere. If the view be correct that these are extremely local products, it would seem inexpedient (whatever their properties may be) to include them, at least for the present, in any enumeration intended to be applicable to the whole of India. But indeed, this view seems to have been anticipated by yourself and your co-author of the Madras list. In Table (A) the following remark occurs regarding **Swertia affinis, S. corymbosa** and **Exacum bicolor** :—"These plants are common in certain seasons on the Nilgiris, Pulneys, Shevaroys, and may be used as very efficient local substitutes for the Himalayan *Chiretta.*" The proposed Addendum, it will be seen, accepts them as Indian (not Madras local) substitutes, and makes no mention of the other local substitutes, which are equally prevalent in Bombay, Bengal, Assam, and Burma. But before even accepting the first five of the above enumeration as local substitutes, the Central Committee feel that they should like to know if these drugs have ever been chemically and clinically tested, and whether in the drug shops of South India they are actually more extensively sold than the articles for which they are recommended as local substitutes. The Central Committee are of opinion that many years may have to elapse before it would be desirable to expand the enquiry from *Indian substitutes for imported drugs* into the discovery of local substitutes for these. But in the case of *Chiretta* there is still another aspect of this possible provision of Indian local substitutes. The 1894 Committee recommended that

Chiretta should be "Omitted from Depôt Equipment List" on the ground that "it is a bulky article and can be got in every local bazaar in India." The provision of local substitutes of very possibly inferior therapeutic value to *Chiretta* itself would thus seem superfluous.

Of the remaining eleven drugs in the above enumeration **Citrus Aurantium** and **Toddalia aculeata** may be admitted as fully disposed of by the foregoing remarks.

Having gone into these details in order to obviate any possible misapprehension, I am desired to enquire :—

See p. 202

1st.—Whether the Madras Committee (when the question of revising the Central Committee's Provisional List of drugs was submitted to them) purposely excluded the above enumerated sixteen or seventeen indigenous drugs.

See pp 179-84.

2nd.—Whether, after mature deliberation, they are still prepared to accept the amended list framed by the Central Committee as preferable to that given in Table (A) of the 1894 Madras recommendations, especially in the light of its more direct applicability to India as a whole.

See p. 281.

3rd.—Whether, in view of the greater importance now attached to the preparation of a List of Indigenous Drugs, since it is to be employed as the basis of a special Indian Addendum to the British Pharmacopœia and later on of an Imperial Pharmacopœia, your Committee desire to recommend other additions than were furnished by their resolution of the 28th April 1898.

4th.—Whether your Committee concur with the Central Committee in the belief that until the indigenous drugs of India have been submitted to chemical, physiological, and therapeutical investigations, no enumeration should (or rather could) be authoritatively advanced as indicating substitutes for European drugs, the exact properties and actions of which are fully understood. The Central Committee presume that it was very possibly with this conviction in mind that the Madras Committee recorded the observation already quoted regarding the necessity that existed to separate facts from pure opinion and truth from fiction.

See p. 361.

Reply, see p 399.

9. I am desired to add, in conclusion, that it is hoped the points raised in this communication may receive *the earliest possible attention* of the Madras Committee, and that your report of their deliberations may reach me in time for submission to the Government of India along with the reply that is being framed by the Central Committee.

LIST "A" FURNISHED IN 1894 BY THE MADRAS COLLEGE AUTHORITIES.

Drugs indigenous to India which could be usefully substituted for certain drugs at present used in the preparation of the medicinal compounds of the British Pharmacopœia.

No.	Name of plant.	Part used	Habitat.	Remarks.
1	Calotropis gigantea, *R. Br.*	Root-bark	Common everywhere	Substitute for Ipecacuanha.
2	Cinnamomum glanduliferum, *Meisn.*	The wood	Himalayas	" " Sassafras.
3	Garcinia Morella, *Desrouss*	Gum-resin	Malabar, Canara, etc.	" " the official gamboge
4	Butea frondosa, *Roxb.*	Seeds, gum	Plains of India	The seeds may be substituted for santonine. The gum for Kino.
5	Embelia Ribes, *Burm.*	The berries	Throughout India	Substitute for koussoo and malefera.
6	Aristolochia indica, *Linn.*	Stem and root	Throughout the low country.	Substitute for serpentary.
7	Berberis aristata, *DC.*	Root	Mountains of South India, Himalayas.	
8	Andropogon Nardus, *Linn.*	The oil distilled from the leaves	Cultivated througrout India.	" " cajeput oil.
9	Carum copticum, *Benth.*	The fruit	Cultivated	" " oil of peppermint, dill, aniseed, caraway
10	Datura fastuosa, *Linn*, *var.* alba	The leaves and seeds.	Throughout India	Substitute for Belladona leaves and scammonium seeds.

LIST "A" FURNISHED IN 1894 BY THE MADRAS COLLEGE AUTHORITIES—*contd.*

Drugs indigenous to India which could be usefully substituted for certain drugs at present used in the preparation of the medicinal compounds of the British Pharmacopœia—contd.

No.	Name of plant.	Part used.	Habitat.	REMARKS.
11	Valeriana Leschenaultii var. Brunoniana, *W. & A.*	The root stock	Nilgiris and other mountains of South India	Substitute for European valerian.
12	Areca Catechu, *Willd.*	Extract from fruit "black catechu."	Cultivated throughout India.	" " pale catechu.
13	Acacia Catechu, *Willd.*	Extract from heart-wood "black catechu."	Burma and India	" " " " The gum is a good substitute for that of Acacia senegal.
14	Acacia arabica, *Willd.*	Bark	Throughout India	Substitute for oak bark.
15	Cæselpipia Sappan, *Linn.*	The wood	Eastern and Western Peninsulas	" " Logwood.
16	Terminalia Chebula, *Retz.*	The dried fruit	The tablelands of India.	" " oak galls.
17	Abrus precatorius, *Linn.*	The root	Throughout India	" " liquorice root.
18	Plantago ovata, *Forsk.*	The seeds	Panjab ; Sindh	" " Inf. Lini. Decotn.
19	Sesamum indicum, *DC.*	Expressed oil from the seed.	Cultivated throughout warmest parts of India.	" " olive oil.
20	Acacia lecophlœa, *Willd.*	The gum	Plains of India	" " gum acacia.

21	Feronia Elephantum, *Correa*	Ditto	Ditto	,, ,, ,,
22	Tylophora asthmatica, *W. & A.*	Root and leaves	Deccan Peninsula and hotter parts of India.	,, Ipecacuanha.
23	Crinum asiaticum, *Linn*	The bulb	Common throughout India.	,, ,, ,, squill.
24	Scilla indica, *Baker*	Ditto	Seashore of South India, Deccan Peninsula.	,, ,, ,,
25	Urginea indica, *Kunth*	Ditto	Eastern and Western coast.	,, ,, ,,
26	Gossypium Stocksii, *var.* herbaceum	Root-bark	Cultivated	,, ,, Ergot.
27	Acalypha indica, *Linn.*	Juice of plant	Hotter parts of India	,, ,, Senegal.
28	Piper Betel, *Linn.*	The leaves	Cultivated in hotter parts of India.	
29	Jasminum Sambac, *Ait.*	Flowers	Cultivated in hot parts of India.	
30	Andrographis paniculata, *Nees*	Entire plant	Throughout India	Cheap substitute for the Himalayan Chiretta.
31	Cissampelos Pareira, *Linn.*	The root	Plains of India	Substitute for root of Chondodendron tomentosum.
32	Swertia corymbosa, *Wight* (Syn. Ophelia corymbosa)	Entire plant	Mountains of South Deccan Peninsula.	These plants are common in certain seasons on the Nilgiris, Pulneys, Shevaroys and may be used as very efficient local substitutes for the Himalayan Chiretta.
33	Swertia affinis, *Clarke* (Syn. Ophelia affinis)	Ditto	Ditto	
34	Exacum bicolor, *Roxb.*	Ditto	Deccan Peninsula, Wynaad, Western slopes of Nilgiris.	

LIST "A" FURNISHED IN 1894 BY THE MADRAS COLLEGE AUTHORITIES—*contd.*

Drugs indigenous to India which could be usefully substituted for certain drugs at present used in the preparation of the medicinal compounds of the British Pharmacopœia—concld.

No.	Name of plant.	Part used.	Habitat.	REMARKS.
35	Tinnospora cordifolia, *Miers.*	Root and stem	Common everywhere	Substitute for columba root.
36	Toddalia aculeata, *Pers.*	Root-bark	Western Peninsula, common.	" " Cuspian bark.
37	Coscinium fenestratum, *Colebr.*	Stems	Western Peninsula	" " columba root.
38	Samadera indica, *Gartn.*	Wood and Niepa	Canara and Malabar	" " Quassia.

NOTE.—I have corrected numerous typographical errors in above list, otherwise it is a careful reprint of the original.—*Honorary Secretary, Central Indigenous Drugs Committee.*

APPENDIX XXXVII. F. TO PARAS 97, 98 AND 114 (3) OF THE REPORT.

THE BRITISH PHARMACOPŒIA.

No 17, dated Madras Medical College, the 17th August 1899.

From—MAJOR F. J. CRAWFORD, M.D, I.M.S, Honorary Secretary, Indigenous Drugs Committee, Madras,

To—GEORGE WATT, Esq., M.B, C.M., C.I.E., etc, Reporter on Economic Products to the Government of India and Honorary Secretary, Central Indigenous Drugs Committee.

In reply to your letter No. 97-I D.C, dated the 2nd instant, I am desired to inform you that your Committee are correct in looking upon the Report of 1894 by Major Crawford and Captain Hollingsworth as quite separate from the present Indigenous Drugs Committee That Report was the outcome of a reference from the London Committee appointed to revise the British Pharmacopœia of 1885, this reference was a general one and recommendations were made on the whole subject of additions and alterations to the British Pharmacopœia apart from local considerations altogether For this reason Major Crawford did not bring the 1894 Report before the Local Indigenous Drugs Committee, which was strictly confined to an investigation of Madras drugs only The more extended scope assumed in the 1894 Report explains the fact that the two lists of drugs did not tally in every way also the inadvertent omission of **Hardwickia pinnata** in that report The latter Committee purposely made their list as small as possible in order the more effectually to attain the objects of the Indigenous Drugs Committee

2 With reference to (*b*) paragraph 8, this Committee agrees with your Committee in regarding the omission of **Urginea indica** and **Scilla indica** in the proposed Addendum to the British Pharmacopœia as remarkable in view of the fact that **Crinum asiaticum** was adopted At the same time your Committee's attention is requested to the Indian Pharmacopœia, page 234 (1868), where **Crinum asiaticum** *var.* **toxicarium** herb is described as analogous in therapeutic uses to the officinal squill

3. This Committee is inclined to accept the view expressed in paragraph 8 (*c*) of your letter that it would be well to exclude drug of purely South Indian origin and habitat and those which have not of recent years been clinically and chemically tested They, therefore, adopt your suggestion that Chiretta (Himalayan) should not be replaced by any of the drugs mentioned as substitutes for it, whether in the 1894 Madras List or in the Addendum. In 1894 the Madras Committee were at pains to state what actual local drugs *could* be substituted for this drug—Chiretta, without impugning in any way in

value or wide distribution of that drug. Again, we are informed that **Swertia affinis, S. corymbosa** and **Exacum bicolor** do not occur as articles of commerce in the drug stores of Madras in any very large quantity and we are not prepared to state to what extent they could be obtained in other parts of this Presidency.

4. In reply to the queries at the end of paragraph 8 of your letter this Committee begs to reply as follows :—

(1) The 1894 List, for reasons stated above, was not placed before this Committee, and this Committee purposely decided to restrict the number of drugs recommended by them.

(2) After careful consideration this Committee are prepared to accept the Central Committee's amended List in the light of its more direct applicability to India as a whole.

(3) At present this Committee do not desire to make any further additions to their list submitted in April 1898.

(4) This Committee generally concur in the views expressed in this paragraph. Thorough testing of new drugs should precede official recognitions of them and the most elaborate and scientific clinical observation should be combined with chemical and physiological work in the hands of a few carefully chosen men who could devote their whole time to it. A selection of observers should be distributed in the different Provinces and Presidencies, so that various climatic conditions may not be lost sight of as part of the investigation.

No. 19, dated Madras Medical College, the 1st September 1899.

From—MAJOR F. J. CRAWFORD, M.D., I.M.S., Honorary Secretary, Indigenous Drugs Committee, Madras,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee.

In continuation of my letter No. 17, dated 17th August 1899, I am desired to make the following remarks regarding paragraph 8 (*c*) of your letter No. 97-I. D. C., of the 2nd August, and paragraph 2 of my letter above. It was noted as remarkable by your Committee that **Crinum asiaticum** was included as a substitute for squills while the more established substitutes **Urgenia indica** and **Scilla indica** were

 THE BRITISH PHARMACOPŒIA.

left out. On consulting the original draft of the Report of the Madras Committee of 1894, it is found that the three drugs were given and the remark made simply in the remarks column "substitutes for squill." No allusion was made to their comparative merits, and as Crinum was written first in order, it was probably chosen for the Addendum under a misapprehension that the more important and useful drugs were quoted first.

2. The 1894 Report had already assumed rather large proportions and no dissertation on the respective values of the drugs alluded to was attempted. The original reference on which the 1894 Committee was formed simply desired, *inter alia*, a list of "suggestions * * * * whereby certain drugs indigenous to India could be usefully substituted for those at present employed"—(Letter, D. O., dated 12th February 1894, from the Secretary to the Pharmacopœia Committee.—A. Scott Reid, M.B., Calcutta). The suggested "rough" list (A) was therefore forwarded for purposes of reference rather than as a complete opinion regarding the indigenous drugs which the Committee would, as the result of mature consideration, finally recommend for permanent inclusions in an official Indian and Colonial Addendum to the British Pharmacopœia—such mature consideration in fact as is now being accorded to the subject by the various practical Drugs Committees in the various Provinces and Presidencies. The 1894 Committee anticipated further reference to the substance matter of their Report, and did not look upon it as final at all. Beyond, however, as far as I know, a formal acknowledgment of its receipt, your letter contained the first allusion to it since its despatch.

No. 2226, dated Medical College, the 26th October 1899.

From—MAJOR F. J. CRAWFORD, M.D., I.M.S., Member of the 1894 Committee and Member of the Madras Branch of the Indigenous Drugs Committee (appointed in 1898),

To—The President, Madras Branch, Indigenous Drugs Committee, Medical College, Madras.

I beg to lay the following statement before you. In the year 1894, by direction of the Madras Government, a Committee was appointed by the Madras Medical College, consisting of the Professor of Materia Medica (Major Crawford) and the Lecturer on Botany (Mr. R. Hollingsworth) to draw up a report dealing with changes contemplated in the British Pharmacopœia. The Committee was asked to make suggestions regarding alterations, omissions, and additions which they would suggest in view of the issue of an Imperial Pharmacopœia. An Indian Addendum was contemplated and, *inter*

AN INDIAN ADDENDUM TO

alia, it was proposed to insert alternative Indian native drugs as substitutes for English ones in cases where experience of such drugs warranted their being recommended. This Committee met several times in 1894 and drew up a Report, the chief part of which dealt with native drugs which might be used in India instead of drugs of like action belonging to the British Pharmacopœia which were obtained from countries outside India. Convenience of preparation and distribution were looked upon as accessory factors in this recommendation. It was known that many useful plants of medicinal value were of very wide distribution in India and readily obtainable by those acquainted with their appearances and characters. In outlying stations where expensive European drugs ran easily out of stock or were obtained with difficulty, a description of such plants, etc., with modes of preparation and their action would be a great help to native and other medical practitioners Many of these may be obtained simply for the trouble of gathering the specimens. Among the lower classes, natives, gardeners, peasants, etc., there is a very accurate knowledge of many such drugs which have a vernacular nomenclature. The 1894 Committee looked upon their work as comprising recommendations of such drugs not only those obtained in Madras, but all over India, and their distribution, habitat, and character were duly noted with the above objects. The List (Table A) comprised, therefore, all native Indian drugs which they considered might be used locally (where obtainable) or generally (in cases where they could be cultivated in gardens and subsequently put through processes of preparation) as substitutes for corresponding British Pharmacopœia ones. The other part of their Report dealing with suggested omissions, etc., of British Pharmacopœia preparations need not be alluded to here. Their Report went to the Government of India and then found its way to the Pharmacopœia Committee of the General Medical Council. When in 1898 (*i*) the inclusion of an Indian Addendum to the British Pharmacopœia was definitely contemplated, Table A of this Report was largely drawn on by that Committee and the pink coloured book, called *Report of the Pharmacopœal Committee on the proposed Indian and Colonial Addendum to the British Pharmacopœia of 1898* consisted, as far as Indian drugs were concerned, practically of those included in this Table A.

In June 1899 a communication was received from the Pharmacopœal Committee asking for further information on these drugs, and this was supplied by the Members of the 1894 Committee who held the same professorial chairs as in 1894. Lately again (September 1899) the 1894 Committee have been applied to for more detailed facts regarding

THE BRITISH PHARMACOPŒIA.

these drugs, and it was suggested that this information be looked upon as of a final character, in order that the information embodied in the different Madras communications *connected with this 1894 Report* might be incorporated as part of the Indian Addendum of the British Pharmacopœia.

This is a short account of the 1894 Committee and its subsequent history. In 1898,* however, the Government of India appointed a Central Committee with local branches in each Presidency and Province for the purpose of investigating Indian native vegetable products of medicinal value This was the outcome of a resolution on the subject passed by the Calcutta Medical Congress held in 1897(?).† Specimens of certain drug preparations were distributed for the purposes of being tested therapeutically by various chosen medical men throughout India and reports were submitted in May last. The question now arises, what is the connection between these two Committees? Are they supposed to be working together and have they the same objects in view? Is the Central Committee in correspondence with Professor Attfield‡ or not? Since the Central Committee have only a limited number of native drugs at present actually under investigation, does it propose to restrict the enquiries to these, and does it desire these alone to form the official Indian Addendum? The members of the 1894 Committee are still sitting, and one of them is also a member of the 1898 Committee (Madras Branch of the Indigenous Drugs of India Committee); they think this matter should be made clear. A reply to Professor Attfield by the 1894 Committee is actually under preparation by them. From Professor Attfield's letter to the latter he has evidently been lately in communication with Mr. Hooper in London on the subject of the 1894 Report (Mr. Hooper is also one of the 1898 Committee). In one of his letters (under date August 29th, 1899) he says "*The Indian and Colonial officials here encourage direct communications with the Medical Council.*"

A reference to the Secretary of the Central Committee (Indigenous Drugs Investigation) would probably be some guide to the 1894 Committee. It is advisable that there should be a common object and a common mode of submitting results and opinions.

* Madras Committee established by Government of India, 31st July 1896.—*G. Watt.*

† Calcutta Medical Congress was in 1894.—*G. Watt.*

‡ Editor of the new B. P. and of the proposed Indian and Colonial Addendum.

APPENDIX XXXVII. G. (ALSO LV.).

No. 101—107, dated the 11th August 1899.

From—GEORGE WATT, Esq., M.D., C.M., C.I.E., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretary of each Local Committee, except Madras.

I have the honour to append, for your information, copy of the marginally-noted letter to the Local Indigenous Drugs Committee at Madras and to invite you to lay the same before your Committee at a very early date, with the view to obtain an expression of their opinion and the favour of a reply to questions 1 to 4 in the concluding portion of paragraph 8 of the letter to the Madras Local Committee, so far as these questions may be regarded as affecting the views already expressed by your Committee on the selection of indigenous drugs for investigation :—

No. 97-I.D.C., dated the 2nd August 1899, with enclosure.

No. 101, dated 11th August 1899 .	Honorary Secretary, Local Indigenous Drugs Committee, Medical College, Calcutta.
„ 102 „ „ „ .	Assistant Surgeon E. Thomas, Honorary Secretary, Local Indigenous Drugs Committee, North-Western Provinces, Lucknow.
„ 103 „ „ „ .	Captain W. D. Sutherland, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Punjab, Lahore.
„ 104 „ „ „ .	Major H. E. Banatvala, I.M.S., Honorary Secretary, Indigenous Drugs Committee, Central Provinces, Khandwa.
„ 105 „ „ „ .	Lieutenant-Colonel R. N. Campbell, I.M.S., Honorary Secretary, Indigenous Drugs Committee, Assam, Shillong.
„ 106 „ „ „ .	Lieutenant-Colonel G. T. Thomas, I.M.S., Honorary Secretary, Indigenous Drugs Committee, Burma, Rangoon.
107 „ „ „ .	Lieutenant-Colonel J. Parker, M.D., I.M.S., Honorary Secretary, Indigenous Drugs Committee, Bombay.

TO PARAS. 97, 98 AND 114 (4).

Replies from the Local Committees.

THE BRITISH PHARMACOPŒIA.

APPENDIX XXXVII. H.

N.-W. P.

No. 1197-K.H., dated Lucknow, 21st October 1899.

I have not had sufficient opportunities for observing the physiological and therapeutical actions of these drugs to warrant my expressing any opinion as to whether they could be authoritatively recommended as officinal substitutes for those already included in the British Pharmacopœia. A further trial on these points is necessary and their chemical action should also be subjected to close investigation.

APPENDIX XXXVII. I.

Panjab.

No. 13-I.D.C., dated Lahore, 8th September 1899

From—CAPTAIN D. W. SUTHERLAND, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Panjab,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

In reply to your No. 103-I.D.C., of 11th ultimo, I have the honour to state that the Panjab Local Committee fully concur with the Central Committee in the belief that until the indigenous drugs of India have been submitted to chemical, physiological, and therapeutic tests in all details, no tabulation of them should be advanced as indicating substitutes for the European drugs of the Pharmacopœia.

APPENDIX XXXVII. J.

Assam.

No. 331, dated Shillong, the 24th August 1899.

From—The Secretary, Local Indigenous Drugs Committee for Assam,

To—The Reporter on Economic Products to the Government of India, Calcutta.

I am in receipt of your letter No. 105, Indigenous Drugs Committee, dated the 11th August 1899, and its enclosure, and in reply I am directed to inform you that these documents have been laid before the Assam Local Committee and carefully considered by the President and members.

2. With regard to questions put in the concluding portion of paragraph 8 of your letter to the Madras Local Committee, I am directed to state that my Committee do not approve of Table A (page 6

Assam.

of correspondence under reply) as framed by the Madras Committee, since it contains many plants of which they know absolutely nothing, and some of which are apparently rarely to be found, and the therapeutical value of which cannot be considered as established. They also do not approve of the list drawn up by the Central Committee, partly on similar grounds to those on which they object to the Madras list, and partly because they consider it would do more harm than good to put forward drugs of known inferior therapeutical value as substitutes for well-known and potent remedies procurable elsewhere. As an instance, the Assam Committee consider the proposed use of **Cæsalpina Bonducella,** as an antiperiodic and ferbrifuge, and therefore as a substitute for quinine, to be a decidedly retrograde step, which they do not wish to see adopted. **Melia Azadirachta Berberis** of various species and **Cedrela Toona** are plants (trees) having only slight curative properties, if any, and they are by no means satisfactory substitutes for the cinchonas and catechus.

3. Of the 38 indigenous drugs entered in Table A, the Assam Committee, from their own experience, can only recommend that the following ones might be included in the new Imperial Pharmacopœia or in an Indian appendix to the British Pharmacopœia of 1898, namely :—

No. 8. **Andropogon Nardus.**
No. 9. **Carum copticum.**
No. 10. **Datura fastuosa.**
No. 12. **Areca Catechu.**
No. 13. **Acacia Catechu.**
No. 14. **Acacia arabica.**
No. 16. **Terminalia Chebula.**
No. 17. **Abrus precatorius.**
No. 18. **Plantago ovata.**
No. 19. **Sesamum indicum.**
No. 24. **Scilla indica.**
No. 25. **Urginea indica.**

To these may be added the following taken from the list framed by the Central Committee, namely :—

Holarrhena antidysenterica.
Carum ajowan and other species.
Adhatoda Vasica.

4. Besides the above there are no doubt many other Indian plants of decided value in the treatment of disease, such as Bel fruit, Chiretta, Cusso, etc., which are well known, but the Assam Committee concur with the Central Committee in the belief that until the indigenous drugs of India have been submitted to complete chemical,

physiological, and therapeutical investigations, no enumeration of them would be of any value or should be authoritatively advanced as indicating approved substitutes for European drugs.

APPENDIX XXXVII. K.

Burma.

No. 2533—42, dated Rangoon, the 27th October 1899.

From—LIEUTENANT-COLONEL G. T. THOMAS, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, and Civil Surgeon, Burma, Rangoon,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

I regret that your No. 106-I.D.C., dated 11th August 1899, has remained unanswered so long, and in reply I have the honour to state that our local Committee do not desire to recommend other additions than were furnished by Resolution of the 28th April 1898.

No enumeration should be advanced as indicating substitutes for European drugs.

The local Committee are prepared to accept the amended list of the Central Committee as preferable to that given in Table A of the 1894 Madras recommendation.

APPENDIX XXXVII. L.

Central Provinces.

No. 2-I.D.C., dated the 18th January 1900.

From—The Reporter and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Central Provinces, Khandwa.

With reference to the correspondence ending with this office letter No. 104, dated the 11th August 1899, I am directed to enquire whether a reply to questions 1 to 4 therein asked for may shortly be expected.

The favour of a very early reply is requested.

APPENDIX XXXVII. M.

Bengal.

No. 3-I.D.C., dated the 18th January 1900.

From—The Reporter and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Medical College, Calcutta.

With reference to the correspondence ending with this office letter No. 101, dated the 11th August 1899, I am directed to

enquire whether a reply to questions 1 to 4 therein asked for may shortly be expected.

The favour of a very early reply is requested.

No. 224, dated Calcutta, the 20th February 1900.

From—LIEUTENANT-COLONEL G. F. A. HARRIS, I.M.S., Officiating Principal, Medical College, Calcutta,

To—The Reporter on Economic Products to the Government of India and Honorary Secretary, Central Indigenous Drugs Committee.

With reference to your letters Nos. 3 and 4-I D.C., dated, respectively, the 18th ultimo, on the subject of trial of five indigenous drugs, I have the honour to inform you that these drugs were being experimented with by the late Major Evans, and I believe that some rough notes were found on his table.

I am referring to Babu Biman Bihary Basu, formerly House Physician at the Medical College Hospital, in conjunction with whom I believe the late Major Evans was working.

I should be glad if you could promptly send me a further sample to be tried in the Out-patient Department under the supervision of the Resident Physician whom I will ask to be good enough to furnish a report at once.

No. 22-I.D.C., dated Calcutta, the 17th March 1900.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., Reporter on Economic Products to the Government of India and Honorary Secretary, Central Indigenous Drugs Committee,

To—The Principal, Medical College, Calcutta.

In compliance with the request conveyed in the concluding paragraph of your letter No. 224, dated the 20th February 1900, I have the honour to forward herewith a second supply of the samples of the indigenous drugs detailed in the margin for purposes of therapeutical tests and practical experiments in the out-door hospital attached to your College. I shall be glad to receive the reports on the effects of your examination when ready.

Podophyllum Emodi—Resin	Reg. No.	1-1
Adhatoda Vasica-Tinct.	„ „	2-1
Picrorhiza Kurrooa „	„ „	3-1
Alstonia scholaris „	„ „	4-1
Calotropis procera „	„ „	5-1
Ditto Pulv.	„ „	5-2

The favour of an acknowledgment is requested.

APPENDIX XXXVII. N. TO PARAS. 97, 98 AND 114 (5) OF THE REPORT.

AN INDIAN ADDENDUM TO B P

No. 8-I.D.C., dated the 2nd February 1899.

From—The Reporter and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Bombay.

Bombay.

Adverting to my letter No. 107, dated the 11th August 1899, I am directed to enquire when the Central Committee may expect to be favoured with the views of your Committee (for submission to the Government of India) on the question of the desirability or not of preparing an Indian Addendum to the British Pharmacopœia of 1898, and in the event of your Committee thinking such desirable, whether you regard the Madras List of 38 drugs (given as an Addendum to this Committee's letter No. 97 of the 2nd August, *see pp. 325-28*) as preferable to the Central Indigenous Drugs Provincial List (see Appendix to our Report, pp. 179-84).

The favour of a very early reply is requested.

SECOND BATCH OF

APPENDIX XXXVIII. A

Catechu.

Second Batch of Drugs for Investigation.

No. 14-I. D. C., dated the 10th January 1899.

From—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, Calcutta,

To—The Director, Land Records and Agriculture, Rangoon, Burma.

With reference to report No. 85 (pages 37 and 38) of the Programme of Collections to be made for the Indian Museum and Imperial Institute during 1898-99, I have the honour to ask the favour of your being so good as to cause the Honorary Secretary, Central Indigenous Drugs Committee, Indian Museum, 1, Sudder Street, Calcutta, to be furnished with 25lb of the finest quality of Burmese Cutch prepared from the wood of Acacia Catechu. The drug is required for distribution to the Local Committees with a view to test its therapeutic properties.

APPENDIX XXXVIII. B.

No. 721—2-E.—10, dated Rangoon, the 22nd March 1899.

From—The Officiating Director of the Department of Land Records and Agriculture, Burma,

To—The Reporter on Economic Products to the Government of India, Calcutta.

With reference to your letter No. 14-I. D. C., dated the 10th January 1899, I have the honour to advise the despatch to your address of a case containing 25lb of the Burmese Cutch prepared from the wood of Acacia Catechu procured from the district of Tharawaddy.

2. Bill of lading is enclosed; please acknowledge receipt.

APPENDIX XXXVIII. C.

No. 400, dated Calcutta, the 9th June 1899.

—The Medical Store-keeper to Government, Bengal Command, Calcutta,

The Reporter on Economic Products and Honorary Secretary, Indigenous Drugs Committee, Calcutta.

Hundred pounds tincture from the 16lb extract black Catechu received with your No. 61-I. D. C., dated 19th May 1899, having now

Catechu.

been prepared, I have the honour to solicit your instructions as to the disposal of the article, and to request that the delivery vouchers, forwarded with this office No. 237, dated 23rd May 1899, may be signed and returned to this depôt without delay.

APPENDIX XXXVIII. D.

No 76-I. D. C., dated the 28th June 1899.

From—GEORGE WATT, Esq, M B., C M, C I.E., Honorary Secretary, Central Indigenous Drugs Committee,

To—The Director of Land Records and Agriculture, North-Western Provinces and Oudh.

Asks for 25lb of **Acacia Catechu** extract of best quality of pale **Catechu** from Kumaon.

No. 2094, dated Cawnpore, the 21st December 1899.

From—The Director of Land Records and Agriculture, North-Western Provinces and Oudh,

To—The Reporter on Economic Products to the Government of India, Calcutta.

With reference to your letter No. 76-I.D C., dated 28th June 1899, I have the honour to enclose a railway receipt for a consignment of 25lb of pale **Catechu** of Kumaon sent to your address, and to request the favour of an acknowledgment.

APPENDIX XXXVIII, E.

No. 12 I. D. C, dated the 10th January 1899.

From—GEORGE WATT, Esq., M.B., C M, C.I E., Honorary Secretary, Central Indigenous Drugs Committee,

To—The Director of Land Records and Agriculture, Bengal, Calcutta.

Asks for 40lb of the seeds of **Cæsalpinia Bonducella**, vern. "Karanju Natarphal."

SECOND BATCH OF Cæsalpinia.

APPENDIX XXXVIII. E.

No. 3089-A., dated Calcutta, the 12th August 1899.

From—P. C. LYON, Esq., C.S., Director of the Department of Land Records and Agriculture, Bengal,

To—The Reporter on Economic Products to the Government of India.

With reference to your letter No. 12-I.D.C., dated the 10th January 1899, I have the honour to send you herewith 3¾lb of the seed of **Cæsalpinia Bonducella**. Futther supply will be made next January.

No. 115-I.D.C., dated the 25th August 1899.

From—The Reporter on Economic Products to the Government of India,

To—The Director of Land Records and Agriculture, Bengal.

I have the honour to acknowledge, with thanks, the receipt of your letter No. 3089A., dated the 12th August 1899, and of the small quantity of **Cæsalpinia Bonducella** seeds advised therein, which has been registered in this office as No. 12149. The present consignment is too small to meet the requirements of the indent, conveyed to you under this office No. 12-I.D.C., dated the 10th January last.

The further supply, promised in the concluding portion of your letter under reply, will therefore be most acceptable.

No. 4589-A., dated Calcutta, the 8th December 1899.

From—P. C. LYON, Esq., I C.S., Director of the Department of Land Records and Agriculture, Bengal,

To—The Reporter on Economic Products to the Government of India.

With reference to your letter No. 12-I.D.C., dated the 10th January 1899, and in continuation of this office letter No. 3089, dated the 12th August 1899, I have the honour to send 8lb of **Cæsalpinia Bonducella** (*Natarphal*) and to say that the remainder will be sent as early as possible.

APPENDIX XXXVIII. F.

No. 10-I.D.C., dated the 10th January 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., Honorary Secretary, Central Indigenous Drugs Committee,

To—The Director of Land Records and Agriculture, Bengal.

Asks for 20lb of the dried seeds of **Ipomœa hederacea**, the "Kaladana."

TO PARAS. 96, 110 AND 117 OF THE REPORT. INDIGENOUS DRUGS.

Ipomœa.

No. 3090-A., dated Calcutta, the 12th August 1899.

From—P. C. Lyon, Esq., C.S., Director of the Department of Land Records and Agriculture, Bengal,

To—The Reporter on Economic Products to the Government of India.

With reference to your letter No. 10-I.D.C., dated the 10th January 1899, I have the honour to send you herewith 20lb of the seed **Ipomœa hederacea,** the local name of which is "Kaladana."

No. 73, dated the 28th June 1899.

From—The Reporter on Economic Products and Honorary Secretary, Indigenous Drugs Committee,

To—The Superintendent, Royal Botanic Garden, Sibpur, Calcutta.

With reference to the work in connection with the enquiry on the indigenous drugs of India, I have the honour to request the favour of your furnishing me with good botanical specimens of **Ipomœa hederacea,** along with a few pounds of the seeds, if available. These are required to serve as typical samples for comparison in this office, as otherwise I am afraid that more than one species may be furnished.

No. 491-S., dated the 13th July 1899.

From—The Superintendent, Royal Botanic Garden, Calcutta,

To—George Watt, Esq., M.B., C.M., C.I.E., Reporter on Economic Products to the Government of India, Indian Museum, Calcutta.

With reference to your letter No. 73-I.D.C., dated the 28th ultimo, I have the pleasure to inform you that the undernoted seed has been despatched to your address by this office peon to-day and to request the favour of an acknowledgment.

APPENDIX XXXVIII. G.

No. 75-I D.C., dated the 28th June 1899.

From—George Watt, Esq., M.B., C.M., C.I.E., Honorary Secretary, Central Indigenous Drugs Committee,

To—The Director of Land Records and Agriculture, North-Western Provinces and Oudh, Lucknow.

Asks for one maund of the dried plants of **Andrographis paniculata.**

SECOND BATCH OF Andrographis.

APPENDIX XXXVIII. C.

No. 923, dated Saharanpur, the 31st October 1899.

From—The Superintendent, Government Botanical Gardens, North-Western Provinces,

To—The Economic Reporter to the Government of India, Indian Museum, Calcutta.

With reference to letter No. 1794, dated Cawnpore, the 26th instant, from the Assistant Director, Land Records and Agriculture, North-Western Provinces and Oudh, to this office, I have the honour to advise despatch per post paid of a packet containing 22 specimens of **Andrographis paniculata** and beg to request the favour of an acknowledgment.

No. 939, dated Saharanpur, the 15th December 1899.

From—The Superintendent, Government Botanical Gardens, North-Western Provinces,

To—George Watt, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, Calcutta.

In reply to your No. 145-I.D.C., dated the 12th December 1899, I have the honour to say that the maund of dried plants of **Andrographis paniculata** supplied to you by the Director of Land Records and Agriculture, North-Western Provinces and Oudh, was not collected through the agency of this garden, I am therefore sending a copy of your letter to the Director for his information.

I believe the botanical specimens I sent you in October last to be **Andrographis paniculata**, but as I did not examine the plant critically, I would suggest having this done in case I have made a mistake.

The plant I sent you, whether the one wanted or not, was at one time largely used by native hakims in malarial fevers, but its use has been displaced by quinine and it is now very scarce. It is not found wild in the immediate neighbourhood nor is it grown in the garden here. The few specimens I sent you were procured from a *mali* who grew a few plants for his own use, and, with the exception of one or two plants he kept for seed, were all the plants he possessed.

No. 1145, dated Cawnpore, the 27th July 1899.

From—The Director of Land Records and Agriculture, North-Western Provinces and Oudh,

To—The Reporter on Economic Products to the Government of India, Calcutta.

With reference to your letter No. 75-I. D. C., dated 28th June

1899, I have the honour to advise the despatch of one maund of the dried plants of **Andrographis paniculata**, a railway receipt for which is enclosed with our letter No. 1144, dated 27th July 1899. Andrographis.

No. 113-I. D. C., dated the 25th August 1899.

From—The Reporter on Economic Products and Honorary Secretary, Indigenous Drugs Committee,

To—The Director of Land Records and Agriculture, North-Western Provinces and Oudh, Lucknow.

I have the honour to acknowledge, with thanks, the receipt of your letter No. 1145, dated the 27th July 1899, and of one maund of the dried plants advised therein as those of **Andrographis paniculata**.

But on examining these they appear to be more nearly allied to the **Swertia Chirata**.

As the supply of **Andrographis paniculata** asked for in this office No. 75-I.D.C., dated 28th June 1899, is required in connection with the operations of the Indigenous Drugs Committee, with a view to have the therapeutic properties of the plant tested in the respective hospitals, the question of the determination of the product is very important. I shall, therefore, be much obliged if you could kindly furnish me with a corresponding botanical sample, in duplicate, pressed between sheets of blotting paper, to enable me to identify the actual plant yielding the specimen now under acknowledgment.

No. 1793, dated Cawnpore, the 26th October 1899.

From—The Director of Land Records and Agriculture, North-Western Provinces and Oudh,

To—The Reporter on Economic Products to the Government of India, Calcutta.

With reference to your letter No. 113-I D. C., dated 25th August 1899, I have the honour to inform you that the Superintendent, Botanical Gardens, Saharanpur, has been asked to prepare and furnish you with botanical specimens of **Andrographis paniculata** in duplicate.

SECOND BATCH OF Andrographis.

APPENDIX XXXVIII. G.

No. 713, dated Lucknow, the 12th January 1900.

From—The Director of Land Records and Agriculture, North-Western Provinces and Oudh,

To—The Reporter on Economic Products to the Government of India, Calcutta.

With reference to your No. 146-I. D. C., dated the 12th ultimo, I have the honour to say that the dried plants of **Andrographis paniculata** were bought from the market, and that botanical specimens of the same cannot therefore be supplied.

No. 11-I. D. C., dated the 10th January 1899.

From—GEORGE WATT, Esq., M B., C.M., C.I.E., Honorary Secretary, Central Indigenous Drugs Committee,

To—The Director of Land Records and Agriculture, Bengal, Calcutta.

Asks for one maund of the dried plants of **Andrographis paniculata**—" Kiryat."

No. 4810-A., dated Calcutta, the 29th December 1899.

From—S. L. MADDOX, Esq., C.S., Offg. Director of the Department of Land Records and Agriculture, Bengal,

To—The Reporter on Economic Products to the Government of India.

In continuation of this office letter No. 4589-A., dated the 8th December 1899, I have the honour to send you herewith 40lb of **Andrographis paniculata** plant and 12lb of **Thevetia neriifolia** seed which have been collected for the Imperial Institute, London. Another instalment will follow shortly.

APPENDIX XXXVIII. H.

Embelia Ribes.

No. 77-I.D.C., dated the 28th June 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., Honorary Secretary, Central Indigenous Drugs Committee,

To—The Director, Land Records and Agriculture, North-Western Provinces and Oudh, Lucknow.

Asks for one maund of *Embelia Ribes* fruits.

TO PARAS. 96, 110 AND 117 OF THE REPORT.

No. 1144, dated Cawnpore, the 27th July 1899.

From—The Director of Land Records and Agriculture, North-Western Provinces and Oudh,

To—The Reporter on Economic Products to the Government of India, Calcutta.

With reference to your letter No. 77-I. D. C., dated 28th June 1899, I have the honour to advise the despatch of maund of **Embelia Ribes** *fruits*, for which a railway receipt is herewith enclosed.

No 13-I.D.C., dated the 10th January 1899.

From—GEORGE WATT, Esq, M B, C.M., C.I.E., Honorary Secretary, Central Indigenous Drugs Committee,

To—The Director, Land Records and Agriculture, Bengal, Calcutta.

Asks for 40lb dried fruits of **Embelia Ribes.**

No. 78-I D.C., dated the 28th June 1899.

From—GEORGE WATT, Esq. M B., C.M., C I.E, Honorary Secretary, Central Indigenous Drugs Committee,

To—The Director, Land Records and Agriculture, Shillong, Assam

Asks for one maund of **Embelia Ribes** fruits.

No. 2671, dated Shillong, the 11th July 1899.

From—L. J. KERSHAW, Esq., I.C.S., Officiating Director of Land Records and Agriculture, Assam,

To—The Deputy Commissioner, Sylhet.

I have the honour to request that you will be so good to forward a maund of fruits of **Embelia Ribes**, called *Bebrang* in Sylhet (*vide* the article on this subject at page 242 of the Dictionary of Economic Products, Volume III) to the address of the Honorary Secretary, Central *Indigenous Drugs Committee*, Indian Museum, 1, Sudder Street, Calcutta, intimation of despatch being given to that officer and to me.

Any cost that may be incurred by you will be paid by this office.

Memo. No. 2672.

Copy forwarded to the Reporter on Economic Products to the Government of India, for information, with reference to his letter No. 78-I. D. C., dated the 28th June 1899.

SECOND BATCH OF Andrographis.

APPENDIX XXXVIII. H.

No. 88-I D. C., dated the 8th July 1899.

From—GEORGE WATT, Esq, M.B, C.M, C.I.E., Reporter on Economic Products, and Honorary Secretary, Central Indigenous Drugs Committee,

To—The Secretary, Board of Revenue (Revenue Settlement, Land Records and Agriculture), Madras.

With reference to the programme of collections to be made for the Imperial Institute, I have the honour to state that a list of the drugs selected by the Central Indigenous Drugs Committee will be found in the Programme published by this office for 1898-99.

1. Andrographis paniculata, plant.
2. Cæsalpinia Bonducella, seeds.
3. Embelia Ribes, fruits.
4. Acacia Catechu, extracts.
5. Ipomœa hederacea, seeds and resin.

Five of these drugs, as noted on the margin, have been selected for special investigation during 1899-1900. I am accordingly to invite the co-operation of the Board, in procuring two of these, namely, Nos. 1 and 5. Of the former we should require one maund of the dried plant and of the latter 20lb of the seeds.

Extract from the Proceedings of the Board of Revenue (Revenue Settlement, Lands Records and Agriculture).

No. 4327-Mis., dated the 2nd September 1899.

MR. HIGGENS.

READ—

Letter from the Reporter on Economic Products to the Government of India and Honorary Secretary, Central Indigenous Drugs Committee, No. 88-I. D. C., dated 8th July 1899.

READ also—

Board's reference thereon, No. 1637, dated 3rd August 1899.

READ also—

Letter from the Reporter on Economic Products to the Government of India and Honorary Secretary, Central Indigenous Drugs Committee, No. 108-I. D. C., dated the 11th August 1899.

RESOLUTION.—The Collector of Tinnevelly will be requested to obtain and despatch to the Reporter on Economic Products one maund (82⅔lb) of dried plants of the **Andrographis paniculata**.

2. The Collector of Cuddapah will be requested to obtain and despatch to the Reporter on Economic Products 20lb of the seeds of the **Ipomœa hederacea**.

TO PARAS. 96, 110 AND 117 OF THE REPORT. **INDIGENOUS DRUGS.**

Andrographis.

3. The Reporter on Economic Products will be informed accordingly and it will be pointed out to him that had his original indent been clear, there would have been no necessity for the Board's Reference No. 1637, dated 3rd August 1899. He will be requested to quote the numbers on his published list in any further indents he may issue, in order that there may be no doubt as to what is required. It would also be more convenient if the local names and the locality whence it is desired that the articles may be obtained, were stated clearly in all cases and that weights should always be given in pounds or cwt. In the present case, the Board has assumed that the indent for a maund means a Bengal maund of 82⅔ lb.

APPENDIX XXXIX.

I.—INVESTIGATIONS CONDUCTED IN BOMBAY.

For Clinical Statements, see pp. 387-92; 419-20; 439-45; 459-60; 475.

[Reports not commented on by the Local Committee, in conformity with Government of India's Resolution of 31st July 1896, para. 2, section 7 (*see App., p. 164*).]

No. G. 2126, dated Bombay, the 28th March 1899.

From—The Acting Medical Store-keeper to Government, Bombay Command, Bombay,

To—D. HOOPER, Esq., Officiating Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

With reference to correspondence ending with your No. I. D. C. of 7th January last, I have the honour to forward herewith the Reports from the Medical Officers, marginally noted, on the forms furnished by you, together with a true copy of the letters received from each of the officers concerned.

Senior Medical Officer, Sir Jamsetji Jijibhai Hospital, Bombay.
Physician, St. George's Hospital, Bombay.
Medical Officer, Civil Hospital, Poona.
Medical Officer, Civil Hospital, Ahmedabad.
Medical Officer, Civil Hospital, Hyderabad, Sind.

Dated the 13th March 1899.

From—CAPTAIN L. F. CHILDE, I.M.S.,

To—The Medical Store-keeper to Government, Bombay Command, Bombay, through the Senior Medical Officer, Sir Jamsetji Jijibhai Hospital.

In reply to your No. G. 8730 of 1898, dated 22nd December, 1898, I have the honour to forward a report on the action of **Adhatoda Vasica** and **Calotropis procera.**

No opportunity has been afforded to make a trial of **Alstonia scholaris** or **Picrorhiza.**

No. 100, dated Bombay, the 13th March 1899.

From—The Physician in charge, St. George's Hospital, Bombay,

To—The Medical Store-keeper to Government, Bombay Command.

In reply to your letter No. G. 1739, dated 8th instant, in reference to the drugs forwarded with your No. G. 8669, dated 20th December 1898, I have the honour to state that no opinions can be expressed on the action of the drugs, as opportunities did not occur for their trial on suitable cases.

No. 356, dated Poona, the 27th February 1899.

From—LIEUTENANT-COLONEL J. P. GREANY, M.D., Civil Surgeon, Poona,

To—The Medical Store-keeper to Government, Bombay Command.

(1) Adhatoda Vasica.
(2) Picrorhiza.
(3) Alstonia scholaris.

With reference to your No. G. 8670, dated the 20th December 1898, I have the honour to forward the report called for in the above-quoted letter on the action of the drugs noted in the margin.

No. 182, dated Ahmedabad, the 12th March 1899.

From—LIEUTENANT-COLONEL M. L. BARTHOLOMEUSZ, M.B., Civil Surgeon, Ahmedabad,

To—The Medical Store-keeper to Government, Bombay Command.

With reference to your No. G. 8671, dated 20th December 1898, and No. I.-I. D. C., dated Calcutta, 4th January 1899, from the Honorary Secretary, Central Indigenous Drugs Committee, I have the honour to inform you that I have had no sufficient opportunity as yet of testing the efficacy of the drugs referred to. When a definite opinion is arrived at after an adequate trial, the same will be reported to you.

No. 194, dated Hyderabad (Sind), the 20th March 1899

From—CAPTAIN A. STREET, I.M.S., Acting Civil Surgeon, Hyderabad, Sind,

To—The Medical Store-keeper to Government, Bombay Command.

With reference to your correspondence on the subject of the trial of certain indigenous drugs, commencing with your No. G. 8672, of 20th December 1898, I have the honour to observe that, owing to the paucity of suitable cases at the hospital and the shortness of the time allotted for trial, it is difficult to pronounce any definite opinion. I beg, however, to send you a few observations on the action and uses of such of them as were administered to patients here. Clinical Reports. Conf. with pp. 120, 417, 460.

APPENDIX XXXIX.

No. G. 4352, dated Bombay, the 1st July 1899.

From—MAJOR B. B. GRAYFOOT, I.M.S., Acting Medical Store-keeper to Government, Bombay Command, Bombay,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

1. Civil Surgeon, Hyderabad.
2. Civil Surgeon, Poona.
3. Physician, St. George's Hospital, Bombay.
4. Civil Surgeon, Ahmedabad.
5. Senior Medical Officer Sir J. J. Hospital, Bombay.

With reference to the correspondence ending with your No. 43-I. D. C., dated the 11th April last, I have the honour to forward herewith copies of reports, from the medical officers marginally noted, on the trial of TINCTURE **Calotropis procera** and **Calotropis procera** PULVIS.

No. 418, dated Hyderabad, the 20th June 1899.

From—CAPTAIN A. STREET, I.M.S., Acting Civil Surgeon, Hyderabad, Sind.

To—The Acting Medical Store-Keeper to Government, Bombay Command, Bombay.

With reference to your No. G. 2645, of 26th April last, I have the honour to state that only the PULVIS **Calotropis procera** was used in a case of dysentery, for which a report has already been sent under this office No. 194 of 20th March 1899.

The tincture of the same not being used for want of suitable cases, was not reported.

No. 163, dated Bombay, the 28th April 1899.

From—LIEUTENANT-COLONEL H. W. D. BOYD, F.R.C.S.I., I.M.S., Physician in charge, St. George's Hospital, Bombay.

To—The Acting Medical Store-Keeper to Government, Bombay Command, Bombay.

In reply to your letter No. G. 2643, of 26th instant, I have the honour to state that, for the want of suitable cases, the drugs in question have not been given a trial.

No. 264, dated Ahmedabad, the 1st May 1899.

From—LIEUTENANT-COLONEL M. L. BARTHOLOMEUSZ, M.B., I.M.S., Civil Surgeon of Ahmedabad.

To—The Acting Medical Store-Keeper to Government, Bombay Command, Bombay.

With reference to your No. G. 2644, dated 26th April, I have the honour to inform you that I tried PULVIS **Calotropis procera** in two cases of dysentery, but with no satisfactory results.

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT. BOMBAY REPORTS.

No. 352, dated Bombay, the 4th May 1899.

From—MAJOR H. P. DIMMOCK, M.D., I.M.S., Acting Senior Medical Officer, in charge Sir J. J. Hospital, Bombay.

To—The Acting Medical Store-Keeper to Government, Bombay Command, Bombay.

In reply to your letter No. G. 2642, dated 28th April 1899, I have the honour to state that a report on TINCTURE **Adhatoda** and TINCTURE and PULVIS **Calotropis** have already been forwarded by Captain L. F. Childe on the 14th March 1899 under this office endorsement No. 202, dated 14th March 1899.

The reports on the TINCTURE **Alstonia** and TINCTURE **Picrorhiza** will be forwarded as opportunities for their trial offer.

MADRAS REPORTS.

APPENDIX XL. A.

II.—INVESTIGATIONS CONDUCTED IN MADRAS.

For Clinical Statements, see pp. 393 401; 421-22; 446-47; 461-62; and 475-76.

[Reports not commented on by the Local Committee in conformity with Government of India's Resolution of 31st July 1896, para. 2, section 7 (*see App., p. 164*).]

No. 35-I. D. C., dated the 5th April 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretary, Indigenous Drugs Committee, Medical College, Madras.

The Central Committee at their meeting, held on the 20th March 1899, desired me to invite you to be so good as to furnish at an early date the reports of the trials that may have been performed in Madras with the drugs alluded to in this office undernoted circular letters:—

No. 146, dated the 16th August 1898, on the tinctures of **Adhatoda** and **Picrorhiza** and the resin of **Podophyllum** (*see p. 255*).

No. 157, dated the 26th August 1898, on the tincture of **Alstonia scholaris** (*see p. 162*).

No. 188, dated the 15th October 1898, on the tincture and powder of **Calotropis procera** (*see p. 268*).

Selected Hospital.

2. At the same time I am to invite your attention to the Government of India's Resolution of the 31st July 1896, paragraph 2, section 6 (see Appendix to this Committee's report, page 162). You will there find that it was decided that certain hospitals and dispensaries should in each province be selected for the trials of indigenous drugs. I am accordingly desired to say that the Central Committee will feel much obliged if you will kindly lay the question of the selection of hospitals and dispensaries before the members of your Committee for formal decision. The names of the selected hospitals and dispensaries should be communicated to me for official record in the Proceedings of the Central Committee in the same manner as has been done for Bombay (*App., p. 170*).

APPENDIX XL. B.

No. 36, dated Madras, the 6th June 1899.

From—MAJOR F. J. CRAWFORD, M.D., I.M.S., Secretary, Local Branch, Indigenous Drugs Committee, Madras,

To—The Secretary, Central Indigenous Drugs Committee, Calcutta.

I am desired by the President of the Local Committee to forward to your address the enclosed Proceedings of a Meeting of the Local Committee held in Madras on the 29th May 1899. Appended to the Proceedings, you will find a copy of the General Remarks made by the Committee on the subject of the investigation itself and the manner in which it has been attempted in the Presidency.

APPENDIX XL. C.

Proceedings of a Meeting of the Local Branch of the Indigenous Drugs Committee held in Madras on the 29th May 1899. Previous Meeting. Conf. with App., p. 261

Present:

LIEUTENANT-COLONEL W. R. BROWNE, M.D., I.M.S., *President.*

LIEUTENANT-COLONEL H. ST. C. CARRUTHERS, I.M.S., Medical Store-keeper to Government, Madras Command, Madras.

MAJOR F. J. CRAWFORD, M.D., I.M.S., *Secretary.*

[NOTE.—The 4th Member, Mr. Hooper, was not present, he has been away from Madras and unable therefore to attend any of the Committee Meetings. (*Conf. with App., p 166*).]

The Secretary stated that at an early stage of the investigation, the following Medical Officers were chosen to put the drugs selected for trial of their therapeutic value to suitable tests in the different hospitals under their charge. The choice was made according to the facilities which these officers had for carrying out the objects of the investigation:—

1. The Superintendent, Government Maternity Hospital, Madras. Madras Hospitals.
2. The Surgeon, First District, Madras.
3. The Surgeon, Fourth District, Madras.
4. The Assistant Physician, General Hospital, Madras.
5. The Additional Medical Officer, General Hospital, Madras.
6. The Civil Surgeon, Tanjore.

Of these Nos. 2, 3, 5, and 6 sent in their reports, while Nos. 1 and 4 wrote to the Secretary to the effect that the time at their disposal

prevented them from testing the value of new drugs in the way they would wish. These two latter officers, therefore, did not submit reports.

The reports from four Medical Officers were then laid before the Committee. After perusal, the Local Committee decided to send them to the Central Committee in their complete condition. The Local Committee were of opinion that, considering the small number of the reports and the difference of opinion among the investigators, no useful purpose would be gained by their attempting to draw any general conclusions from them, and that the Central Committee having the advantage of a large number of reports from various parts of India, would be in a better position to do so.

Remarks by the Local Committee.

In submitting the accompanying reports, the Local Committee desire to point out that the scope of the investigation is restricted considerably in this Presidency by the fact that in up-country stations sufficiently large hospitals do not exist to render the trial of new drugs of much value. Again in the districts Medical Officers devote a great portion of their time to tours of inspection and the interruptions accruing therefrom necessarily detract still further from their value. Coming to the Presidency town itself, difficulties also exist which have made the investigation almost impossible. The past year has been a trying one, specially on Medical Officers, paucity of numbers, plague work--preparations for plague were being carried out all through the cold season—interruption of legitimate work and sick leave have all militated against the success of the local investigation.

With regard to the letter from the Secretary of the Central Committee communicating regarding the trial, especially by the Madras Committee, of the therapeutic value of **Butea frondosa**, the subject was not soon enough brought to notice for this to be done; since changes due to leave, etc., had already occurred among the officers taking part in the investigation; it was too the season when short leave was being granted to other officers, and the doubling up of appointments made still further encroachments on the time at their disposal.

Extract from paragraph 77 of Proceedings of 10th Meeting of the Central Committee. August 2, 1898.

The Local Committee feel it incumbent on them to remark that a more successful way of conducting the investigation would be to depute one or two Medical Officers in each Presidency, who should devote their whole time for a certain period for the purpose. It is

impossible to expect first class results under the existing conditions of the investigation. In several of the hospitals in Madras town there is ample facility for putting new drugs to a thorough test, ample material and appliances, but the Medical Officers in charge of them are engaged in a host of other kinds of work, clinical teaching, medical charge of 80 to 100 beds, college lectures, operative work, and various examinations and inspections. The Committee do not think it yet too late to produce results of some value if one or two men were to be *now* appointed to sift the evidence as far as it has gone and then devote a few months to separating facts from pure opinion and truth from fiction.

Conf. with App., pp. 69, 198, 112, 370.

APPENDIX XL. D.

No. 234, dated Madras, the 2nd May 1899.

From—Dr. A. C. RENDLE, M.B., Acting Additional Officer, through LIEUTENANT-COLONEL W. R. BROWNE, M.D., I.M.S., Senior Medical Officer, General Hospital, Madras,

To—The Secretary, Local Committee on Indigenous Drugs, Medical College, Madras.

I have the honour to report that I have been unable to make otherwise than a very limited trial of the drugs submitted. It is seldom that suitable cases occur in my wards. The patients are usually either anæmic and cachectic cases or else acute cases when it is obviously inexpedient to test new and uncertain drugs in preference to those like Quinine and Ipecacuanha whose action is reliable and well known.

The following results have been obtained:—

1. ***Tincture of Adhatoda.***—Not tested.

2. ***Tincture of Picrorhiza.***—This drug has been largely tried by my predecessor, Dr. Taylor, in Fever, Bronchitis and Phthisis cases. He came to the conclusion that it was useless as regards any antiperiodic, tonic, or hydrogogue effect. The dose he used was thirty minims thrice daily.

I tested it in a few cases and failed to recognize any antiperiodic, or tonic effect.

3. ***Resin of Podophyllin.***—We have largely tried this drug and have found it fully equal to the English drugs. It appears to be a reliable purgative and cholagogue.

4. ***Tincture of Calotropis.***—Not tested.

MADRAS REPORTS.

APPENDIX XL. D.

5. *Pulvis Calotropis.*—I have tried this in small doses, grains v to grains x, repeated three times daily in several mild cases of dysentery; but without noticing the rapid improvement that generally follows a similar dose of Ipecacuanha. In one case who was admitted passing 5 to 6 motions daily with mucus, the mucus disappeared on the eighth day of this treatment, the motions at the same time becoming semi-solid, but in other cases it failed utterly, whereas Ipecacuanha rapidly produced a beneficial effect.

I have also administered it as an emetic in several cases in 20-grain doses. The action seems fairly reliable. Vomiting usually (but not always) followed. The vomited material consisted, as a rule of a 'whitish clear watery fluid' (I quote from the student's notes).

In all the cases in which PULVIS CALOTROPIS was given as an emetic in 20-grain dose, the administration was followed by purgation. In one case this was very free indeed.

APPENDIX XL. E.

Conf. with pp 303, 121, 401, 176

No. 208, dated Tanjore, the 25th April 1899.

From—LIEUTENANT-COLONEL H. A. F. NAILER, M.B, Acting District Medical and Sanitary Officer, Tanjore,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Madras.

With reference to your Fr. No 15, dated 13th April 1899, I have the honour to forward the reports on the indigeneous drugs sent for trial at the Rajah Mirasidar Hospital, Tanjore. The **Adhatoda Vascia** grows luxuriantly in Tanjore.

APPENDIX XL. F.

No. 842, dated Madras, the 2nd November 1898.

From—LIEUTENANT-COLONEL A. G. STURMER, I.M S., Superintendent, Government Maternity Hospital, Madras,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Madras.

Drugs not tested.

With reference to your letters Nos. 1 and 3, dated 28th August and 12th September 1898, respectively, and also your No. 10, which forwarded letter No. 188-I. D. C., dated 15th October 1898, from the Officiating Reporter on Economic Products to the Government of India, etc., I have the honour to inform you that the medicines

have not been tried in this hospital, as cases suitable for their exhibition have not presented themselves, and it is not likely that an opportunity will arise.

2. At the Egmore Female Dispensary, the drugs may be used but, as it is impossible to trace these patients for the purposes of a report, it was not deemed advisable to use the medicines there

3. I beg, therefore, to return the drugs, with the two pamphlets and blank report forms received.

No. M. 1549, dated Madras, the 10th November 1898.

To—The President.

Forwarded. I suggest another hospital being chosen in place of the Government Maternity to experiment with the drugs sent to us from Calcutta

F. J. CRAWFORD, *M.D.*,

Secretary, Local Indigenous Drugs Committee

Dated the 16th November 1898.

I do not know of any other hospital in the Presidency town likely to be in a position to utilise the drugs.

W. R. BROWNE, *M.D.*,

President, Local Indigenous Drugs Committee

APPENDIX XL. G.

Reference No. 3425-2, dated Madras, the 11th January 1899.

From—Captain A. E. GRANT, M.B., Assistant Physician, General Hospital, Madras,

To—The Senior Medical Officer, General Hospital, Madras.

With reference to the various samples of indigenous drugs forwarded by you to me for favour of report, I regret to say that I find it impossible to obtain the necessary leisure to carry on the investigations properly. I have waited some time before writing, in the hope that I might find it possible, but my College and other work after hospital hours entirely prevent my attempting any work of this kind. It is obvious that such a report, if it is to be of any value must contain the record of work carried out with extreme care. I very much regret that I do not possess the leisure necessary for the work, as my time is already fully occupied

No Leisure for Experiments.

MADRAS REPORTS.

APPENDIX XL. G.

Dated the 13th January 1899.

Forwarded for information.

W. R. BROWNE, *M.D., Lt.-Col., I.M.S.,*
Senior Medical Officer, General Hospital.

APPENDIX XL. H.

Dated Madras, the 24th May 1899.

From—MAJOR F. J. CRAWFORD, M.D., I.M.S., Acting Surgeon, 4th District, Madras,

To—The Secretary, Local Branch, Indigenous Drugs Committee, Madras.

In reply to your letters communicating to me copies of correspondence from the Central Drugs Committee, I have the honour to report that the drugs forwarded by you were duly received by me and attempts were at once set on foot to test their therapeutic value. I may premise in the first place that my official charge is a large and important one, holding, as I do, a chair in the Medical College, as well as charge of a large district and hospital. The surgical side of the latter is altogether managed by me, and though the opportunities afforded to test new drugs are ample, I regret that the time at my own disposal has not permitted me to give that attention to the enquiry which I could wish and which, indeed, when accepting the drugs, I originally hoped I would have. The actual notes of cases, therefore, have been made by my assistants in most cases under my guidance and supervision. For the same reason, I have not been able to follow closely the printed blank form of report given in Appendix, pages 183 to 195, of the Central Committee Proceedings (proof copy up to April 1898).

This want of close personal investigation, I am aware, detracts considerably from the value of the observations, but I feared this result from the beginning, and that for men in busy practice and in big charges, engaged in college and clinical instruction to undertake enquiries of this sort were to court difference in results at different times. I submit, therefore, with these observations the report of my attempts to test the values of the drugs sent to me for trial.

Podophyllum : *Conf. with p 46 ; App., pp. 211-28 ; 273-75 : 475-81.*

Podophyllin Resin.—As most natives on coming to hospital require a mild purge, this resin was tried in a large number of cases, and it was found to have effects very similar to the resin of the B. P. The administration was begun in doses of 1/6 grain, but this had no effect whatever, and after experiments on several patients

a dose of ½ grain was found to be the most useful to start with. In this dose the drug brought away large hard masses of dark fæces which subsequently became lighter and more natural in colour. Liver symptoms were in many cases relieved, though where the stools were light in colour and soft and pasty, the drug could not be compared with calomel in relieving the patient. In doses as above, it did not appear to gripe, even though given alone in the form of pill with extract of gentian as an excipient. When pushed, that is when repeated nightly, the motions became semi-solid or even liquid, a fact also observed in some cases where one dose was given and no costiveness was present.

Picrorhiza Kurrooa.—This drug in the form of tincture was tried in several cases of ill-defined fever. In most it brought down the temperature, but as it produced some looseness of the bowels, at the same time its administration had to be stopped. Its use, however, might be advised in cases of low fever accompanied by constipation. In one case of symptomatic fever (elephantasis) the temperature was appreciably lowered and the bowels regulated, they had previously been irregular. In another case a moderate attack of malarial fever which had resisted home (native) remedies, this drug, after being administered three times in 24 hours, brought the temperature down from 101°F. to 99°·5 next morning, but the bowels became loose for a couple of days. This looseness was regulated by diminishing the frequency of the administration. In this case the fever did not return beyond an evening rise to 99°F. for a week. Subsequently it came to normal and remained there till discharge.

Picrorhiza. *Conf. with pp. 12, 30, 17. App., pp. 135, 181, 211, 228, 231-38, 159-74.*

Adhatoda Vasica.—This drug was tried in several cases, and in the form of tincture it had undoubted effect in lessening the tenacity of the thick mucous secretion in the later stages of acute bronchitis. It relieved painful spasm and dyspnœa in the acute stages, where inflammation was present. It was commonly remarked by several patients that they felt better as the result of taking this medicine; they felt relieved by it, and their cough was less troublesome. The clinical reports of this drug are attached.

Adhatoda. *Conf. with pp. 30, 38, 47, 50; App., pp. 116, 153, 202, 211, 229-32, 232-57, 292, 350, 373, 357-418.*

Alstonia scholaris.—This is a drug well known to the natives in South India and is much used by native physicians as a tonic after fevers and in debilitating chronic diseases. In my hospital attempts were frequently made to test its value, but on account of the fact that patients leave hospital as soon as acute symptoms subside I had not sufficient experience of the drug to pass a reliable opinion on its value. Similarly, in the out-patient department, patients leave off coming before the assistants can properly test its administration.

Alstonia. *Conf. with pp. 37, 47, 61. App., pp. 113, 180, 229, 259-61, 419-38.*

There is, however, little doubt regarding its value as a tonic febrifuge.

Calotropis. *Conf. with pp 37, 46; App., pp. 146, 148, 179, 202, 211, 228, 251, 262-72, 293-96, 352, 358, 439-58.*

Calotropis procera.—This drug was tried in several cases where ipecacuanha would otherwise have been administered and the results have not been very satisfactory. In the form of powder it almost invariably caused nausea, frequently vomiting accompanied by a feeling of wretchedness, nausea being subsequently persistent for some hours. In the form of pill, the drug more frequently passed through the stomach without any action and bad effect on the intestine. In some cases it produced looseness of the bowels and colicky pains, but its value in dysentery in place of ipecacuanha is by no means clear as the result of my observations.

APPENDIX XL. I.

No. 65-I. D. C., dated the 17th June 1899.

From—The Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Madras.

I have the honour to acknowledge the receipt of your letter, dated the 6th instant.

In reply I desire to thank you for the enclosures furnished therewith, being Proceedings of a meeting of the Local Committee held in Madras on the 29th May 1899, together with reports from Medical Officers on certain indigenous drugs that were forwarded to you for the purpose of testing their therapeutic properties. The report will be placed before the Central Committee at their next meeting.

APPENDIX XLI. A. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

III.—INVESTIGATIONS CONDUCTED IN ASSAM.

For Clinical Statements see pp. 402-06 ; 423-28 ; 448-50 ; 463-67 ; 477-80.

[Reports not commented on by the Local Committee in conformity with Government of India's Resolution of 31st July 1896, para. 2, section 7. (*See App., p. 164.*)]

No. 31-I. D. C., dated the 5th April 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—LIEUTENANT-COLONEL R. N. CAMPBELL, M.A., I.M.S., Honorary Secretary, Indigenous Drugs Committee, Assam, Shillong.

With reference to the correspondence ending with your letter No. 321, dated the 29th October 1898, I am directed to inform you that the Central Committee at their meeting held on the 20th March 1899 desired me to invite you to be so good as to furnish at an early date the reports of the trials that may have been performed in the selected hospitals and dispensaries of Assam with the drugs referred to in this office undernoted circular letters :— *Letter No. 321, see App., p. 299.*

No. 142, dated the 16th August 1898, on the tinctures of **Adhatoda** and **Picrorhiza** and the resin of **Podophyllum.** *See p. 255.*

No. 153, dated the 26th August 1898, on the tincture of **Alstonia scholaris.** *See p. 261.*

No. 185, dated the 15th October 1898, on the tincture and powder of **Calotropis procera.** *See p. 268.*

APPENDIX XLI. B.

No. 99, dated Shillong, the 12th April 1899.

From—LIEUTENANT-COLONEL R. N. CAMPBELL, M.A., I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Assam, Shillong,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

With reference to your letter No. 31-I. D. C., dated the 5th April 1899, I have the honour to forward herewith the reports, noted on the margin, of the trials with the drugs referred to in your letter above mentioned. *Conf. with pp. 402-06, 423-28, 448-50, 463-67, 477-80.*

From Shillong, Goalpara, Nowgong, Tezpur, Gauhati, Sibsagar, 42nd Gurkha Rifles, Shillong.

ASSAM REPORTS.

APPENDIX XLI. C.

No. 103, dated Shillong, the 14th April 1899.

From—LIEUTENANT-COLONEL R. N. CAMPBELL, M.A., I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Assam, Shillong,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

In continuation of my letter No. 99, dated the 12th instant, I have the honour to forward herewith a report on drugs tried from the Civil Medical Officer, Garo Hills.

APPENDIX XLI. D.

No. 54-I. D. C., dated the 28th April 1899.

From—The Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—LIEUTENANT-COLONEL R. N. CAMPBELL, M.A., I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Assam, Shillong.

I have the honour to acknowledge the receipt of your letter Nos. 99 and 103, dated the 12th and 14th April 1899, respectively.

In reply I beg to thank you for the enclosures furnished therewith, being reports from the medical officers on certain indigenous drugs forwarded for the purpose of testing their therapeutic properties. The reports under acknowledgment will be laid before the Central Committee at their next meeting.

APPENDIX XLI. E.

No. 145, dated Dhubri, the 2nd March 1899.

From—MAJOR E. A. W. HALL, M.B., C.M., I.M.S., Officiating Civil Surgeon, Goalpara,

To—The Civil Surgeon and Honorary Secretary, Local Indigenous Drugs Committee, Assam, Shillong.

Conf. with p. 404.

As requested in your letter No. 301 of the 27th September 1898, I have the honour to report the results of observation in the enclosed form, and to state that, except tincture **Adhatoda** leaves, no other drugs could be experimented on with any accuracy up to date.

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

ASSAM REPORTS. Conf with pp. 405, 425, 418, 479.

APPENDIX XLI. F.

No. 158, dated Nowgong, Assam, the 29th March 1899.

From—HONORARY CAPTAIN J. MCNAUGHT, Civil Medical Officer, Nowgong District,

To—LIEUTENANT-COLONEL R. N. CAMPBELL, M.A., I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Assam, Shillong.

I have the honour to forward the reports on the indigenous drugs forwarded with your letters No. 297, dated 27th September 1898, and No. 327, dated 2nd November 1898. These drugs were given to the Hospital Assistants of Nowgong Dispensary and Jail Hospital. It does not appear that these drugs are to be preferred to those of the same classes which are in use.

APPENDIX XLI. G.

No. 172, dated Tezpur, the 30th March 1899.

From—MAJOR J. W. MACNAMARA, M.D., Civil Surgeon, Darrang,

To—The Civil Surgeon, Shillong, and Honorary Secretary, Indigenous Drugs Committee, Assam.

With reference to your letter No. 328, dated the 2nd November 1898, I have the honour to state that the report on the drugs was asked for on 15th April, but was pressed for on 31st March just as I was about making over charge. On this account only a hurried note can be made. There is always great difficulty in determining the effects of drugs, and the difficulty when they are given by natives to natives, as these were, is still greater.

If I were asked to satisfy myself that arsenic was good for malaria, I should have great difficulty in doing so from my own observation, and to expect us to tell whether these drugs are of use is expecting too much.

I think the **Podophyllum** is inferior, because a grain of it taken alone had no effect on me, although naturally sensitive to the drug. I could not try the other drugs in the same way on myself, but I made them over to the Hospital Assistants at the Jail and Dispensary.

These are the observations I have to make after examining them:—

Podophyllum.—This being a drug which is seldom used alone, it was tried at the disponsary in combination with colocynth and other purgatives. The result is the inquiry is not conclusive, but it is believed to be effective by the Hospital Assistant. What advantage it can have over the **Podophyllum** of the British Pharmacopœia, I cannot imagine, as the latter is cheap enough, and we use only about

APPENDIX XLI. G.

½ a drachm of it, costing only a couple of annas, in a year at the Sadr Dispensary.

I have myself, as an experiment, taken one grain as near as it could be weighed, and it had no aperient effect whatever, as far as I could make out in that dose.

Calotropis procera.—This was tried in a few cases, but no good effects were noticeable. It did not appear to cause vomiting, and was also only used in combination. It was used in 10 grain doses, but a more extended trial is necessary. It seems to me that it is not right to try experiments to any extent in dispensary cases with a drug of which we know absolutely nothing.

TINCT. **Alstonia scholaris.**—Tried on three cases of dysentery in the jail. No good effects noticeable from one drachm doses, 3 times a day, in any case.

TINCT. **Picrorhiza.**—Tried in five cases of fever. No good effects noticeable and no further trials made.

TINCT. **Adhatoda.**—Tried in two cases of asthma in drachm doses. No apparent good effects were noticeable.

APPENDIX XLI. H.

No. 178, dated the 1st April 1899.

From—MAJOR E. C. HARE, I.M.S., Civil Surgeon, Gauhati,
To—The Civil Surgeon, Shillong.

Conf with pp. 426-27, 463-64.

I have the honour to enclose herewith the report on certain drugs sent for examination with your letter No. 286, dated 18th September 1898.

APPENDIX XLI. I.

No. 1058, dated Sibsagar, the 27th December 1898.

From—The Civil Surgeon, Sibsagar,
To—LIEUTENANT-COLONEL R. N. CAMPBELL, M.A., I.M.S., Civil Surgeon, Shillong.

Conf with pp. 406, 128, 165.

In reply to your No. 300, dated 27th September 1898, I have the honour to return herewith the form (No. 1) with the results of Nos. 3, 4 and 5 of the drugs sent by you for trial as recorded in Forms IV and X by Hospital Assistant Khairuddin of Sibsagar Charitable Dispensary.

APPENDIX XLII. A. TO PARAS 75, 85, 104 AND 115 OF THE REPORT.

IV.—INVESTIGATIONS CONDUCTED IN THE PANJAB.

For Clinical Statements see pp. 407, 429, 451, and 468.

[Reports not commented on by the Local Committee, in conformity with Government of India's Resolution of 31st July 1896, para. 2, Section 7. (*See App., p. 164*).]

No. 28-I. D. C., dated the 29th March 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—CAPTAIN D. W. SUTHERLAND, I.M.S., Honorary Secretary, Indigenous Drugs Committee, Panjab.

The Central Committee at their meeting, held on the 20th instant, desired me to invite you to be so good as to furnish, at an early date, the reports of the trials that may have been performed in the Panjab with the drugs furnished by this office under cover of Circular letters No. 141 of the 16th August 1898, on the tinctures of **Adhatoda** and **Picrorhiza** and the resin of **Podophyllum**, also Circular No. 152, dated 26th August 1898, on **Alstonia scholaris**. *Reply, see p 300.* *See pp 255 and 261.*

2 At the same time I am to invite your attention to the Government of India's Resolution of the 31st July 1896, paragraph 2, section 6 (see Appendix to this Committee's report, page 162). You will there find that it was decided that certain hospitals and dispensaries should in each province be selected for the trials of indigenous drugs. Your letter of the 3rd September 1898 mentions that you were to distribute the drugs furnished to suitable hospitals and dispensaries, but the Central Committee will feel obliged if you will lay the question of the selection of hospitals and dispensaries before the members of your Committee for formal decision. I am to add in conclusion that the names of the selected hospitals and dispensaries should be communicated to me for official record in the proceedings of the Central Committee, and in the same manner as has been done for Bombay (*App., p. 170*).

Selected Hospitals. *Cont with p. 300.*

APPENDIX XLII B.

No. 26, dated the 27th April 1899.

From—CAPTAIN D. W. SUTHERLAND, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Panjab, Lahore,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

I have the honour to attach the correspondence received from the Principal, Medical College, Lahore, and the Civil Surgeons of Delhi,

PANJAB REPORTS.

APPENDIX. XLII. B.

Peshawar, Gurdaspur, and Dharmsala, relative to the action of the indigenous drugs sent for experiment. I greatly regret that the results are so meagre, but that is partly due to the drugs having been received after the fever season had past, and a good deal to repeated changes of Medical Officers in the Civil Surgeoncies of Delhi, Dharmsala, and Gurdaspur, during the winter.

It is the general wish of the members of my Committee that an extension of time should be given, so that further trial may be made with the drugs.

APPENDIX XLII. C.

No. 56-I. D. C., dated the 9th May 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., etc., Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—CAPTAIN D. W. SUTHERLAND, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Panjab, Lahore.

Meeting July 21st Extended till 1st October.

In reply to paragraph 2 of your letter, dated the 27th April 1899, asking for an extension of time to enable the members to further test the indigenous drugs, I have the honour to inform you that at the next meeting of the Central Indigenous Drugs Committee I shall place your letter before the members, and in due course will give myself the pleasure of communicating to you the result.

APPENDIX XLII. D.

No. 366, dated the 28th March 1899.

Memo. from—CAPTAIN C. H. JAMES, I.M.S., Civil Surgeon, Kangra District,

To—CAPTAIN D. W. SUTHERLAND, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Panjab, Lahore.

Drugs not Tested.

Has the honour to inform him with regard to his memo, dated 28th February 1899, referring to properties of certain indigenous drugs sent to undersigned for trial, that up to the present undersigned has had no opportunity of testing the efficacy of the remedies received.

No. 283, dated the 4th March 1899.

From—The Assistant Surgeon, in charge Civil Hospital, Delhi,
To—The Civil Surgeon, Delhi.

I have the honour to report as follows after trial of some of the drugs forwarded by Captain D. W. Sutherland :—

1. TINCT. **Alstonia scholaris** was used in cases of malarial fevers of different types with beneficial result. Only a few days' use of the drug was sufficient to cure cases that came under treatment.

2. TINCT. of **Adhatoda Vasica** was tried, but not in sufficient number of case to warrant any deductions being drawn.

3. The other drugs have not had any trial yet. Report regarding them will be submitted after they have been tried.

Forwarded to Captain Sutherland, I.M.S.

DELHI; *4th March 1899*	J. F. CUNNINGHAM, M.D., *Major, I.M.S., Civil Surgeon, Delhi.*

APPENDIX XLII. E.

Dated Peshawar, the 26th April 1899.

Demi-official from—SURGEON-LIEUTENANT-COLONEL B. DOYLE, Civil Surgeon, Peshawar,

To—CAPTAIN D. W. SUTHERLAND, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Panjab, Lahore.

I am sorry for the delay in sending in the report on the indigenous drugs. We have tried only one tincture **Calotropis procera** for dysentery in two cases. Shortly before we got the drugs we began trying tincture **Cannabis indica** for the same disease, and there was scarcely room for another trial at the time. Submitted to Committee, 21st July.

I have asked the Assistant Surgeon to make a trial of the other drugs and to note the results. I think it would be desirable to have the names, ordinary doses recommended, and diseases for which they should be tried or general action, printed on each bottle or specimen.

PANJAB REPORTS.

APPENDIX XLII. F.

Dated the 20th March 1899.

From—LIEUTENANT-COLONEL S. H. BROWNE, C.I.E., Principal, Medical College, Lahore,

To—CAPTAIN D. W. SUTHERLAND, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Panjab, Lahore.

I am sorry I have no definite results to record regarding the actions of the indigenous drugs supplied from Calcutta It seems to me that inquiries made in this way can lead to no satisfactory results. Mild attacks of diseases, such as malarial fever, dysentery and diarrhoea will often subside without any drug treatment, as a result of confinement to bed and a special diet. In such cases the administration of the preparations supplied from Calcutta may be followed by rapid recovery, but it is a matter of great difficulty, if not impossibility, to decide whether this result is *post* or *propter*.

Experiments not performed. *Conf. with Report, pp. 26, 60, 102.*

In the case of severe forms of fever and other diseases I confess I do not feel myself justified in experimenting with unknown and doubtful drugs when I have others of known and well-established efficiency available.

APPENDIX XLII. G.

No. 111, dated the 18th March 1899.

From—The Assistant Surgeon, "Relieved" Civil Surgeon, Gurdaspur,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Lahore

Conf. with pp. 107, 68.

In reference to your letter, dated 9th November 1898, I have the honour to forward herewith my brief remarks in the enclosed printed forms on the efficacy of the four indigenous drugs sent with your above-quoted letter.

APPENDIX XIII. A TO PARAS 75, 85, 104 AND 115 OF THE REPORT.

I.—INVESTIGATIONS CONDUCTED IN THE NORTH-WESTERN PROVINCES AND OUDH.

[*No Clinical Statements furnished by the Local Committee except the letters that follow.*]

No 30 I D C, dated the 5th April 1899.

From—GEORGE WATT, Esq, M B, C M, C I E, Reporter on Economic Products to the Government of India and Honorary Secretary, Central Indigenous Drug Committee,

To—The Honorary Secretary, Indigenous Drugs Committee, North-Western Provinces and Oudh, Agra.

The Central Committee at their meeting, held on the 2[illegible] March 1899 desired me to invite you to be so good as to furnish at an early date the reports of the trials that may have been performed in the North-Western Provinces with the drugs alluded to in the Office circular letters *viz* —

No 140 dated the 16th August 1898 on the [illegible] of **Adhatoda, and Picrorhiza** and the [illegible] **Podophyllum.**

No 151 dated the 26th August 1898 on the tincture of **Alstonia scholaris.**

No 183 dated the 18th October 1898, on the tincture and powder of **Calotropis procera.**

2 At the same time I am to invite your attention to the Government of India's Resolution of the 31st July 1896, paragraph 2, section [illegible] (*See Appendix to this Committee's Report, page 164*). You will find that it was decided that certain hospitals and dispensaries should in each province be selected for the trials of indigenous drugs. I am accordingly desired to say that the Central Committee will feel much obliged if you will kindly lay the question of the selection of hospitals and dispensaries before the Members of your Committee for their decision. The names of the selected hospitals and dispensaries may be communicated to me for official record in the Proceedings of the Central Committee in the same manner as has been done for Bombay (*Appendix, page 170*).

No 69 I D C, dated the 27th June 1899.

From—GEORGE WATT, Esq, M B, C M, C I E, Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee,

To—The Honorary Secretary, Local Indigenous Drug Committee, North-Western Provinces and Oudh, Agra.

I am directed to invite your attention to my letter No [illegible] I D C, dated the 5th April 1899, and to ask that the report of the trials of

the five drugs and the names of the selected hospitals and dispensaries may be submitted at your earliest convenience.

APPENDIX XLIII. B.

No. 14-I. of 1899, dated the 6th July 1899.

From—The Honorary Secretary, Local Indigenous Drugs Committee, North-Western Provinces and Oudh, Agra,

To—The Reporter on Economic Products to the Government of India, Calcutta.

With reference to his No. 69-I. D. C., dated the 27th June 1899, has the honour to enclose herewith a copy of reports from the Hospitals of Benares and Agra on the efficacy of the drugs in question. A report from the Hospital at Lucknow will be sent when received.

These are the three Hospitals where these drugs are tried.

APPENDIX XLIII. C.

From—The Assistant Surgeon, GANGA SINGH, Benares P. W. Hospital, Benares,

To—The Civil Surgeon, Benares.

In reply to the Circular letter No. 30-I. D. C., dated the 5th April 1899, from the Honorary Secretary and Reporter on Economic Products to the Government of India, I have the honour to say that I have tried the medicines sent to this hospital on the different dates and reports on the therapeutic value are as follows :—

(1) The tincture of **Picrorhiza** has been used in many cases of ague and has proved to be a very efficacious remedy. It does not depress or produce cinchonism and generally succeeds in curing it. It was also given in milder cases of remittent fever with good results. If given in the commencement of disease (remittent fever), during the remission it generally proves successful.

(2) The tincture of **Adhatoda** has been given in both the acute and chronic Bronchites, but not with much success.

(3) I have used the resin of **Podophyllin** as an alterative and cathartic in diseases of the liver, constipation, etc., and

have found it as efficacious as the official resin of **Podophillin**, so it can be substituted in its place.

(4) The tincture and powder of **Calotropis procera** have been used in Bronchitis and Dysentery and have been found efficacious.

(5) The tincture of **Alstonia scholaris** was used only in a few cases, and I cannot say about its efficacy as yet.

APPENDIX XLIII. D

Dated the 27th May 1899.

From—The Assistant Surgeon A. C. Chakravarti,
To—The Civil Surgeon, Benares.

I have tried **Adhatoda Vasica** in half a dozen cases of ... and Bronchitis and found it useless either in effecting ... or relieving the cough.

The other medicines, *viz.*, **Picrorhiza Kurrooa** and **Alstonia scholaris** were not given a trial, as I did not get any suitable cases for them.

Calotropis procera has not been tried at all ... I have no experience of it, but as an alterative and tonic I tried it in Leprosy years ago.

From—The Assistant Surgeon B. P. Bagchi, Agra,
To—The Civil Surgeon, Benares.

My experience of **Adhatoda Vasica** agrees with that of Dr. N. C. Chakravati. I have had no opportunity of experimenting with the other drugs.

APPENDIX XLIII. E.

No. ..., dated the 9th July 1899.

From—Captain J. M. Crawford, I.M.S., Civil Surgeon and District Superintendent, Vaccination, Lucknow,
To—The Honorary Secretary, Indigenous Drugs Committee, Agra.

With reference to his No. II—1, dated 3rd May 1899, ...

honour to forward herewith in original a report, dated 19th instant, of Civil Assistant Surgeon Mohamed Abdul Rahim, Khan Bahadur, in charge of the King's Hospital, Lucknow, on the trial of tinctures therein referred to.

APPENDIX XLIII. F.

Dated the 19th July 1899.

From—The Assistant Surgeon Abdul Rahim, Khan Bahadur,

To—The Civil Surgeon, Lucknow.

With reference to No. 13-I of 1899, from the Honorary Secretary, Indigenous Drugs Committee, Agra, of the 6th July, I beg to submit a short note of the drugs that were sent to the King's Hospital for trial.

Further, I beg to report that our experience as to the proper therapeutical action of these drugs is so limited that we cannot but give a very short note we made during the last few months. Our patients generally in the out-door department of the hospital were not exclusively treated by these drugs. It is necessary that we should give more free trials before we can give any definite result.

Tincture Adhatoda Vasica.—This was freely given in Bronchitis after influenza and generally in Bronchitis, both acute and chronic, without any marked effect. It was also tried in cases of asthma. It did not produce any effect in relieving the spasm. In very few cases it helped in removing tenacious sputum from the bronch. As an expectorant in some cases the effect was marked. Its effects on temperature in influenza was nothing. Requires more trial.

2. ***Tincture Alstonia scholaris.***—This preparation has been used in doses from 20 drops to one dram in cases of chronic diarrhœa and dysentery. It seems to produce good effect in chronic cases where the catarrhal conditions of the M. M. of the intestines have lasted for some time. It does not seem to produce any marked effect in ordinary diarrhœa. It was also tried in cases of chronic Bronchitis, Cystites Leucorrhœa. As to its effects in these cases nothing could be said positively. It is necessary to give a further trial in such cases before anything could be said as to its beneficial effect.

3. ***Tincture Picrorhiza Kurrooa.***—It was tried in cases of gastralgia, dyspepsia, colic, chronic diarrhœa and as a stomachic. Its effect in gastralgia is nothing. In dyspepsia specially after malarial fever it had some effect but not well marked. Its effect is something like decoction of bark (cinchona) but not so marked. In chronic diarrhœa and atonic dyspepsia its effects were something like a mild stimulant of the mucous membrane. It is necessary to give further trial to its use.

4. ***Calotropis Procera.***—The powder of the root of **Calotropis procera** (Madar) has been used in the hospital for a long time The effect of the powder in small doses, say, from 3 to 5 grains, on the stomach is that of a mild stimulant giving good appetite. It increases the gastric secretion. In large doses from 30 to 60 grains it irritates the stomach and acts as an emetic. It is freely given in small doses with cinchona as a febrifuge. Also with other carminatives it is given in dyspepsia. Its action on the M. M. of the bronchi as an expectorant has been doubtful. It has been used in Dover's powder as a substitute of Pulv. Ipecacuanha with doubtful result.

5. Tincture **Calotropis procera** has been freely used in influenza and bronchitis and fever, but with no marked effect.

6. ***Podophylli Resinæ, India.***—It was used in few cases a purgative; its action on the bowels were not certain.

APPENDIX XLIII G.

No. 211, dated Benares, the 8th November 1899.

From—LIEUT.-COL. J. W. SWEENY, I.M.S., Civil Surgeon, Benares,

To—Assistant Surgeon E. THOMAS, Honorary Secretary, Local Indigenous Drugs Committee, North-Western Provinces and Oudh, Lucknow.

With reference to the accompanying documents I have the honour to forward the enclosed reply from Assistant Surgeon Ganga Singh expressing his opinion. As personally I have little or no opportunity of trying the drugs in question, and as the specimens sent for experimental use were made over to Assistant Surgeon Ganga Singh in charge of the Prince of Wales' Hospital, his opinion is naturally the one which is valuable.

The report received does not deal with our 5 drugs but with the Madras list of 38 (*see pp. 325-28*). We have thus got no reply from North-Western Provinces.

G. WATT,—3-2-1900.

APPENDIX XLIII. G.

N. W. P.
REPORTS.

Dated Benares, the 1st November 1899.

From—The Assistant Surgeon GANGA SINGH,

To—The Civil Surgeon, Benares.

With reference to the inclosed list of indigenous drugs to India I have the honor to say that the drugs noted on the margin have been found by me to be nearly equal in their efficacy and substitutes to the official drugs mentioned against them. About the rest, I have had no occasion to use them, but think that they would also be as efficacious as their equivalents of the English Pharmacopœia mentioned in the Committee's list, so I wish that they all be taken and recognised as officinal ones.

Name of plant.	*Name of substitute.*
Calotropis gigantea	**Ipecac.**
Cinnamomum glanduliferum.	**Sassafras.**
Garcinia Morella.	**Gamboge.**
Butea frondosa – gum and seeds	**Kino gum and santon.**
Berberis aristata.	**Iodine.**
Acacia Catechu – extract.	**Catechu.**
Acacia arabica – bark.	**Oak bark.**
Cæsalpinia Sappan.	**Log wood.**
Terminalia Chebula.	**Oak galls.**
Abrus precatorius – root	**Liquorice.**
Scilla indica	**Squill.**
Gossypium Stocksii – root bark.	**Ergot.**
Tinospora cordifolia	**Columba & chiretta.**

APPENDIX XLIV A. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

VI.—*INVESTIGATIONS CONDUCTED IN BURMA.*

For Clinical Statement see pp. 108-18; 130-38; 152-58; 469-74; and 481.

[Reports not commented on by the Local Committee, in conformity with Government of India's Resolution of 31st July 1896, para. 2, section 7 (*see App., p. 161*).]

No. 34-I D.C., dated the 5th April 1899.

From—The Reporter and Honorary Secretary, Indigenous Drugs Committee,

To—The Honorary Secretary, Indigenous Drugs Committee, Burma, Rangoon.

With reference to the correspondence ending with your letter No $\frac{1175}{43}$, dated the 25th October 1898, I am directed to inform you that the Central Committee at their meeting held on the 2[illegible]th March 1899, desired me to invite you to be so good as to furnish it in early date the reports of the trials that may have been performed in the selected hospitals and dispensaries of Burma with the drugs referred to in this office undernoted circular letters:—

No. 144, dated the 16th August 1898, on the tinctures of **Adhatoda** and **Picrorhiza** and the resin of **Podophyllum**.

No. 155, dated the 26th August 1898, on the tincture of **Alstonia scholaris**.

No. 186, dated the 5th October 1898, on the tincture and powder of **Calotropis procera**.

APPENDIX XLIV. B.

No 1762-42, dated Rangoon, the 20th July 1899.

From—LIEUT-COL. G. T. THOMAS, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Burma, Rangoon.

To—The Honorary Secretary, Central Indigenous Committee, Calcutta.

I have the honor to forward herewith the reports on experiments, made with the indigenous drugs supplied to you by the Civil Surgeons of the following places:—Rangoon General Hospital, Rangoon Jail Hospital, Insein Jail Hospital, Thayetmyo Hospital, Bassein, Thongwa District (Maubin), Akyab, Toungoo, Meiktila, Mandalay, Sagaing, Bhamo and Mogaung

APPENDIX XLIV. B.

2 The following Civil Surgeons have not yet had any opportunity to make experiments with any of the drugs supplied by you Their reports will be made when experiments are made—

Civil Surgeon,	Prome.
"	Myingyan.
"	Moulmein
"	Yamethin.
"	Sandoway.
"	Shwebo.
"	Kyaukpyu.
"	Falam.

APPENDIX XLIV. C.

No 21-10-M., dated Insein, the 1st March 1899

From—The Superintendent, Central Jail, Insein,
To—The Honorary Secretary, Local Indigenous Drugs Committee, Burma, Rangoon.

I have the honour to report that the **Podophyllum Emodi** supplied for use by Medical Storekeeper, Burma, has been tested in four cases of malarial fever with constipation.

2 Half grain doses were given in each case and the drug acted in all respects as does the similar preparation of the British Pharmacopœia

APPENDIX XLIV. D.

No 52-10-M, dated Insein, the 2nd May 1899.

From—The Superintendent, Central Jail, Insein,
To—The Honorary Secretary, Local Indigenous Drugs Committee, Burma

With reference to your letter No 1800-43, dated the 28th October 1898, I have the honor to report that the powder and tincture of **Calotropis procera** supplied on 14th November 1898, was all used by my predecessor who left no note on the subject. I am informed, however, that as a substitute for Ipecac. the drug was of little use having but slight effect in checking dysenteric lesions and their effects.

APPENDIX XLIV. F.

No. 164, dated Henzada, the 23rd April 1899.

From—The Civil Surgeon, Henzada,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Burma.

With reference to your letter No. 1426-43, dated the 7th September 1898, I have the honour to submit the following report as to the use of the drugs sent.

1. ***Adhatoda Vasica.***—The tincture was tried in chronic bronchitis when the ordinary drugs in use had given little or no relief. The patient was about 45 years of age and prematurely old and feeble. The expectoration was copious and viscid and the patient's sleep was much disturbed from coughing. The drug gave relief within 24 hours and the patient made a very good and speedy recovery from its use. It was administered in 30 minim doses every 4 hours.

2. ***Pulvis Calotropis procera.***—This drug was used in cases of dysentery but being found inferior to Ipecacuanha, it was discontinued.

3. ***Tincture Alstonia scholaris.***—It acted excellently in chronic case of malarial fever. One case of six months duration readily improved under its use. I should like to try this medicine more extensively. It was given in 30 minim doses three times a day.

4. ***Tincture Picrorhiza Kurrooa.***—This has been tried in malarial fevers with good results, but not so readily beneficial as tincture Alstonia scholaris.

5. ***Tincture Calotropis procera.***—Has been tried in cases of dysentery and diarrhœa and as a diaphoretic. The results were feeble. In dysentery and diarrhœa the benefit derived was not sufficiently encouraging to continue its use. As a diaphoretic it was good, but not in my opinion superior to that ordinarily in use in hospital.

APPENDIX XLIV. F.

No. 138, dated Thayetmyo, the 14th April 1899.

From—Major C. S. Rundle, M.B., I.M.S., Civil Surgeon, Thayetmyo,

To—The Senior Civil Surgeon, Rangoon.

As requested in your Medical Department, No. 842-42, dated the 12th instant, I have the honour to report as follows on the experiments with the Indian indigenous drugs forwarded.

BURMA REPORTS

APPENDIX XLIV. I.

The drugs were placed in the hands of Hospital Assistant Abdool Majeed Khan, who has used them in suitable cases, reports as follows :—

Adhatoda Vasica (Hindustani name *Bokas*). *Action*—Antiperiodic, Expectorant, Febrifuge used in cases of chronic Bronchitis, Asthma and Phthisis and found very useful. Tincture **Adhatoda Vasica**—dose 10 to 60 drops.

Alstonia scholaris (Hindustani name *nil*). *Action, Astringent*, Tonic Anthelmentic and Antiperiodic. I have used this drug in the following case.

A weakly child suffering from chronic Dysentery and found the drug useful in 5 drop doses to four years child every four hours.

Calotropis procera (Hindustani name *Madar*). *Action*, Alterative. Tonic and diaphoretic used in several cases of syphilitic ulcer and leprosy, acts best as an alterative and tonic. Doses, Tincture **Calotropis procera** 10 to 20 drops, thrice a day. Have treated successfully cases of leprosy and syphilis.

Picrorhiza Kurrooa (Hindustani name *Kutki*). *Action*—In large dose Hydragogue, Purgative and Antiperiodic. I have not used this drug.

Gundo Biroza.—*Action.*—Stimulant, Diuretic and Tonic, useful as a stimulant for ulcer, and resin of Gunda Biroza ; used in Gonorrhœa cases, found very useful.

APPENDIX XLIV. G.

No. 154-11 M., dated Meiktlila, the 14th April 1899.

From—MAJOR S. POWELL, M.D., Officiating Civil Surgeon, Meiktila,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Burma, Rangoon.

With reference to your Medical Department No. 856-42, dated 12th April 1899, I have the honour to report, for your information, that the undermentioned drugs have been prescribed in the Out-patient Department of this Dispensary with the following results :—

Tincture of Adhatoda.—Has been prescribed in 11 cases of Bronchitis or severe bronchial catarrh in 20-minim doses combined with other expectorants. The results were satisfactory, the effect being estimated to be equivalent to half the quantity of Vinum Ipecacuanha as an expectorant.

Tincture Calotropis procera.—Has been prescribed with other bitters as a tonic and stomachic for debility and impaired appetite in five cases in doses of 20 minims with satisfactory results.

Pulvis Calotropis procera.—Has been used in three cases of dysentery in 5 grain doses combined with opium, but no report having been received, it is conjectured that the remedy had been successful.

All the above drugs were used in the cases of out-patients only

APPENDIX XLIV. H.

No. 362, dated Mandalay, the 17th April 1899

From—MAJOR A. R. P. RUSSELL, I.M.S., Civil Surgeon, Mandalay,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Burma, Rangoon.

With reference to your letter No. 840-42, dated the 12th instant I have the honour to forward herewith a report on experiments noted in the margin with Indian indigenous drugs. The report on the other two drugs will be submitted later when an opinion can be formed of their merits.

Tincture Calotropis procera.
" Picrorhiza Kurrooa.
Podophilli Resinæ.

Name of Drug.—TINCT. *Calotropis procera. Action.*—It is a stimulant expectorant. Secretion becomes thinner. There was no nausea or depression.

M. xv thrice a day have been used for an adult.

Podophylli Resinæ.—Acts powerfully, produces small frequent motions with griping. Some catarrh of mucous membrane. Liver is somewhat stimulated. Dose from ¼ to ½ grain for an adult.

TINCT. *Picrorhiza Kurrooa.*—This drug was used in Remittent Fevers as an Antipyretic without any special success. It was used alone and not in combination. Dose 3 grain T. D.

APPENDIX XLIV. I.

No 2689-42, dated Rangoon, the 17th November 1899.

From—LIEUTENANT-COLONEL G. T. THOMAS, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee. Burma.

To—The Honorary Secretary, Central Indigenous Drugs Committee, 1, Sudder Street, Calcutta.

I have the honour to forward herewith the reports on experiment made with the indigenous drugs supplied by you by the Civil Surgeons of Myingyan and Sandoway.

APPENDIX XLIV. J

No. 443-28-M. 4, dated Myingyan, the 31st October 1899.

From—MAJOR A. R. P. RUSSELL, I.M.S., Civil Surgeon Myingyan,

To—The Honorary Secretary, Indigenous Drugs Committee, Burma, Rangoon.

With reference to correspondence ending with your No. 2002-42, dated 22nd August 1899, I have the honour to forward herewith the report on the several drugs received.

APPENDIX XLIV. K.

No. 131-99-M., dated Sandoway, the 8th September 1899.

From—A. WILLIAMS, Esq., Civil Surgeon, Sandoway,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Burma, Rangoon.

In reply to your No. 2007-42, dated Rangoon, the 23rd August 1899, I have the honour to state as follows :—

Picrorhiza has been given in cases of fever with good results; has also been given in cases of malarial fever, but its action has not been so well marked. Is a slight tonic, but this requires further trial. In cases of "ague cake" the drug has miserably failed. When given in combination with strychnia and Liqr. Arsenicalis it appears to give good results.

Adhatoda has been given in acute Bronchitis, but the results were not satisfactory; in chronic Bronchitis it was useless; when given in combination with ammonia and senega it seem to act well Its action is further increased when given in combination with ammonia, senega and squill. In cases of Asthma the drug has given no results.

APPENDIX XLV. A. TO PARAS. 75, 85, 104 AND 115.

III.—INVESTIGATIONS CONDUCTED IN THE CENTRAL PROVINCES.

A digest of Clinical Returns furnished by the Honorary Secretary, Local Committee : See pp. 496 503.

No. 33-I.D.C., dated the 5th April 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta

To—MAJOR H. E. BANATVALA, I.M.S., Honorary Secretary, Indigenous Drugs Committee, Central Provinces, Betul.

With reference to the correspondence ending with your letter No. 36-I.D., dated the 22nd October 1898, I am directed to inform you that the Central Committee at their meeting held on the 20th March 1899 desired me to invite you to be so good as to furnish at an early date the reports of the trials that may have been performed in the selected hospitals and dispensaries of the Central Provinces with the drugs referred to in this office under-noted circular letters :—

No. 143, dated the 16th August 1898, on the tinctures of **Adhatoda** and **Picrorhiza** and the resin of **Podophyllum.**

No. 154, dated the 26th August 1898, on the Tincture **Alstonia scholaris.**

No 178, dated 15th October 1898, on the tincture and powder of the **Calotropis prorcea.**

APPENDIX XLV. B.

No 591, dated Khandwa, the 7th July 1899.

From—MAJOR H. E. BANATVALA, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Khandwa,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

With reference to your No. 70 I.D.C. of the 1st instant, I have the honour to inform you that the report called for will follow very shortly and that I regret the delay caused in its submission.

Please note that my present address is "Khandwa."

APPENDIX XLV. C.

No. 9-I.D., dated Khandwa, the 8th July 1899.

From—MAJOR H. E. BANATVALA, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Khandwa,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

In continuation of my No. 591 of the 7th instant, I have the honour to inform you that of the eight institutions to which indigenous drugs were sent for trial, the officers in charge of two have sent no reports whatever; while of the remaining six, only one report gives details of cases, etc., and can be called a full one. I have asked for fuller information with regard to the other five; but as it may mean a further delay in the submission of the final report from these provinces, may I request the favour of your informing me if this will be allowed by your Committee. While regretting the delay, the Central Provinces Committee are of opinion that it would be advisable to await the reply of those Civil Surgeons to whom a further reference is made, and hope that this will not seriously inconvenience the Central Committee.

APPENDIX XLV. D.

No. 92-I.D.C., dated the 19th July 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Khandwa, Central Provinces.

I am directed to acknowledge the receipt of your letter Nos. 591 and 9-I.D., dated the 7th and 8th July 1899, respectively.

In reply I am to inform you that I shall be glad of the report as soon as you can conveniently procure it. Owing to the scheme being new, most provinces have been unable to submit the reports by the time (six months) originally specified. The Committee have accordingly put off the preparation of their final report for a few months longer. I am to add, therefore, that they await with interest the replies of your Committee. I shall be obliged if you will kindly see that all replies are given on the forms furnished by me, and that the signatures of the reporting officers are legible. Out of the large series of replies already to hand the names of the officers cannot be made out for more than half. It will save much delay, therefore, if you will be so good as to see that on one of the forms the name is given in printed Roman character above the signature.

APPENDIX XLV. E. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

No. 1, dated 18th January 1900.

From—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Central Provinces.

Reminder that reply is urgently called for.

APPENDIX XLVI. A.

VIII.—INVESTIGATIONS CONDUCTED IN BENGAL.

No Clinical Statements or Reports furnished by the Local Committee.

No. 32-I.D.C., dated the 5th April 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., Honorary Secretary, Central Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretary, Indigenous Drugs Committee, Medical College, Bengal, Calcutta.

The Central Committee at their meeting held on the 20th March 1899, desired me to invite you to be so good as to furnish at an early date the reports of the trials that may have been performed in Bengal with the drugs alluded to in this office undernoted circular letters:-

No. 139, dated the 16th August 1898, on the tinctures of **Adhatoda** and **Picrorhiza** and the resin of **Podophyllum**.

No. 150, dated the 26th August 1898, on the tincture of **Alstonia scholaris**.

No. 182, dated the 15th October 1898, on the tincture and powder of **Calotropis procera**.

2. At the same time I am to invite your attention to the Government of India's Resolution of the 31st July 1896, paragraph 2 section 6 (see Appendix to this Committee's report, page 164). You will there find that it was decided that certain hospitals and dispensaries should, in each province, be selected for the trials of indigenous drugs. I am accordingly desired to say that the Central Committee will feel much obliged if you will kindly lay the question of the selection of hospitals and dispensaries before the members of your Committee for formal decision. The names of the selected hospitals and dispensaries should then be communicated to me for official record in the Proceedings of the Central Committee in the same manner as has been done for Bombay (Appendix, page 172)

BENGAL REPORTS.

APPENDIX XLVI. B.

No. 72-I.D.C., dated the 27th June 1899.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretary, Indigenous Drugs Committee, Medical College, Bengal, Calcutta.

I am directed to invite your attention to my letter No. 32, I.D.C., dated the 5th April 1899, and to ask that the reports of the trials of the five drugs and the names of the selected hospitals and dispensaries may be submitted at your earliest convenience.

APPENDIX XLVI. C.

No. 4-I.D.C., dated the 18th January 1900.

From—GEORGE WATT, Esq., M.B., C.M., C.I.E., Honorary Secretary, Indigenous Drugs Committee, Calcutta,

To—The Honorary Secretary, Local Indigenous Drugs Committee, Medical College, Calcutta.

With reference to the correspondence ending with this office letter No. 72-I.D C., dated the 27th June 1899, I am directed to enquire whether the reports of the trials of the five indigenous drugs may shortly be expected.

The favour of a reply at your earliest convenience is requested.

APPENDIX XLVII. A. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. X.

BOMBAY.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	**Adhatoda Vasica.**
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g.*, Squill).	It affords relief as an expectorant, and diminishes profuse bronchial secretion.
(2) *Sedative* Expectorant (Depressant, nauseant). Increase secretion; lower blood pressure (*e.g.*, Ipecacuanha).	
C. Preparations used—	The Tincture.
D. Method of Administration, and Doses—	Given with water, one ounce. Dose, of the tincture, 30 minims, three or four times a day.
E. Remarks—	Relief was afforded in cases of bronchitis, especially in chronic bronchitis with pulmonary emphysema. In cases of phthisis pulmonalis no benefit resulted from its administration.
F. Signature and Designation of Reporting Officer, also Date—	L. F. CHILDE, *Capt., I.M.S.,* *Sir J. J. Hospital, Bombay.* *The 10th March 1899.*

CLINICAL RETURNS:

Adhatoda.

APPENDIX XLVII. A.

Table showing the action of TINCT. Adhatoda

Name.	Age.	Disease.	Dose.
1 Shaik Malik	30	Chronic Bronchitis.	Ms. 30 t. d. s. increased to ms. 30, four times.
2. J. Almeida	45	Chronic Bronchitis and Emphysema.	Ms. 30 increased to ms. 40, four times a day.
3. Ragoo Rawji	45	Chronic Bronchitis: Emphysema and dilatation of right side of heart.	Ms. 30, four times a day.

Vasica *on cough and expectoration.*

Duration of days admitted.	Remarks.
21 days	On admission patient had dyspnœa and severe cough, with profuse watery expectoration, dry and moist sounds heard all over the chest; very slight fever. For the first four days the patient's condition remained nearly the same, then the expectoration was diminished and cough a little less. The chest still showed dry and moist sounds, but not so numerous; no other uncomfortable symptoms. Bowels move freely. Four days after this the patient's condition was much better, cough, dyspnœa and expectoration much diminished. Foreign sounds not so abundant. The condition of the patient improved very much and was discharged, cured, after 21 days when no foreign sounds were heard; there was very little cough, with slight frothy expectoration.
36 "	On admission patient had dyspnœa, and cough accompanied with profuse watery expectoration, chest on percussion hyperresonant and breathing harsh, expiration prolonged and dry and moist sounds heard. Two days after the administration, the patient began to improve; cough and expectoration much less, though very slight difference in physical signs noticed; a few days after this the physical signs showed marked difference, the dry and moist sounds were much less, especially the latter. Expectoration was much less. The patient continued the same for a few days, but he then got fever, and for which quinine sulphate was given in addition to the mixture. The patient was discharged after remaining under treatment for 36 days, when the foreign sounds in the chest were much less.
40 "	On admission the patient was in an advanced stage of emphysema. Expiration very much prolonged and marked dyspnœa. Dry sounds abundant in the chest and moist sound chiefly at the bases. Systolic bruit heard in the tricuspid area. Œdema present. When œdema disappeared under the proper treatment, tincture Adhatoda was tried, but patient had no relief for a week. After this the expectoration was less and patient complained less of cough and dyspnœa. Tincture was tried for about 20 days when the œdema again made its appearance, so digitalis and diuretics with purgatives, were given, in addition to the tincture, and the patient was discharged relieved.

APPENDIX XLVII. A.

Table showing the action of TINCT. Adhatoda

Name.	Age	Disease.	Dose.
4. Deen Mahomed Abdool Rehman.	25	Convalescent from double pneumonia. Bronchitis.	Ms. 30 t. d. s.
5. Sayyed Moheedeen	21	Incipient phthisis . .	Ms. 30 t. d. s.
.	28	General tuberculosis .	Ms. 30 t. d. s.

Vasica *on cough and expectoration*—concluded.

Duration of days admitted	REMARKS.
10 days	The patient showed signs of a mild attack of Bronchitis when the drug was tried. The physical signs were dry and moist sounds in front and back of the chest. Under the treatment expectoration less, so also the physical signs, and the patient was discharged well.
20 "	The patient was admitted for Hæmoptysis, cough and fever; chest showed slight signs of commencing phthisis at the apices. The drug was given when Hæmoptysis stopped. It had very slight action at first; the physical signs became much less and patient was discharged relieved.
10 "	On admission, consolidation was made out at both the apices. Enlarged glands in the abdomen, pain and fever. The drug was tried for ten days, but as there was no relief, and as the patient's condition began to get worse, it was omitted; subsequently the patient died of tubucular diarrhœa.

L. F. CHILDE, *Captain, I.M.S.*,
Sir J. J. Hospital, Bombay.

The 10th March 1899.

APPENDIX XLVII. A.

FORM No. X.

POONA, BOMBAY.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	Adhatoda Vasica.
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g.*, Squill).	No.
(2) *Sedative* Expectorant (Depressant, nauseant). Increase secretion, lower blood pressure (*e.g.*, Ipecacuanha).	Yes.
C. Preparations used—	Tincture Adhatoda Vasica.
D. Method of Administration, and Doses—	Half drachm doses, three or four times a day.
E. Remarks—	This drug was very largely used in cases of bronchitis and bronchial catarrh, and it appears to me to increase the expectorations and diminishes the severity of cough. I think its action more resembles that of Ipecacuanha than of Squill. DATTU GANESH SABNIS, *Assistant Surgeon.*
F. Signature and Designation of Reporting Officer, also Date—	Submitted through LT.-COL. J. P. GREANY, *M.D., I.M.S.* POONA; *The 27th February 1899.*

APPENDIX XLVII. B. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

CLINICAL RETURNS: Adhatoda.

FORM No. X.

TANJORE, MADRAS.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	Adhatoda Vasica.
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion.	Yes.
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	Twenty to 30 minims, in water, three times daily.
E. Remarks—	The drug was administered in chronic bronchitis (11), bronchial asthma (11), phthisis (3). All the 11 cases of chronic bronchitis did well; the expectoration was increased, and was coughed up easily, in the majority of cases. Of the bronchial asthma cases, only one did well, the others had to be treated with Ipecac. and Tincture Camph. Co. The cases of phthisis did not do well, as the cough was very distressing. The bronchial asthma cases were principally old men and women with weak hearts. I would not recommend its use in such cases.
F. Signature and Designation of Reporting Officer, also Date—	H. A. F. NAILER, *Lieut.-Col., I.M.S.,* *Ag. Dist. Medl. and Sany. Officer.* TANJORE, *The 25th April 1899.*

CLINICAL RETURNS

Adhatoda.

APPENDIX XLVII. B.

FORM No. X.

MADRAS.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	Adhatoda Vasica.
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g.*, Squill).	A useful expectorant; it lessens cough by increasing the bronchial secretion and facilitating its expulsion.
(2) *Sedative* Expectorant (Depressant, nauseant). Increase secretion, lower blood pressure (*e.g.*, Ipecacuanha).	
C. Preparations used—	Tincture
D. Method of Administration, and Doses—	Half to one fluid drachm, in water, every 4 hours.
E. Remarks—	
F. Signature and Designation of Reporting Officer, also Date—	W. A. LEE, *Lieut.-Col., I.M.S., Surgeon, First District.* MADRAS; *The 27th May 1899.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

MADRAS.

Adhatoda Vasica.

Clinical Reports furnished by Major F. J. Crawford, M.D., I.M.S., Acting Surgeon, 4th District, Madras.

TINCTURE Adhatoda Vasica.

Name.—Jylemdundo . *Age*, six.

Disease.—Asthma . . Female.

Admitted, 16th December 1898.

16th January, 1899.—Was admitted for asthma on the 16th December 1898, and has been under treatment in hospital for the past 30 days. Did not get any recurrence of the attack since admission.

Condition before administration of the drug.

No spasmodic attacks of dyspnœa. Breathing somewhat free, much cough with very little expectoration. Bronchial secretion mucous and tenacious. On auscultation, sonorous and mucous rales heard over the lungs in several places. Temperature normal. Bowels are being moved regularly once every day.

Treatment.—Tinct Adhatoda Vasica . ʒss.
Spt. Chloroform . . ♏xx.
Aqua Menth. Pip. ad. . . ℥j.
T. D.

Symptoms after administration.

17th January, 1899.—Had no cough yesterday, and did not expectorate at all till 3 o'clock this morning. Expectoration less difficult and mucous; no nausea or vomiting; no depression. Feels slightly stimulated after taking the medicine. Temperature normal. Bowels moved once.

18th January, 1899.—Cough less troublesome. Expectoration mucous, and a little more in quantity than yesterday; no dyspnœa. Breathing easier. Mucous rales heard over both lungs. Complains of pain in the chest owing to the exertion of coughing. Slept well during the night. Has a slight cold in the nose. Bowels moved once. Temperature normal.

20th January, 1899.—Has been sleeping well for the past two nights. Cough has been much less, and expectoration easier, and sputum slightly muco-purulent. Temperature has been normal. Bowels regular.

22nd January, 1899.—Cough very much better. Expectoration has been less in quantity for the past two days and mucous. Breathing free. Rales disappeared.

MADRAS.

Clinical Reports.

23rd January, 1899.—There was no cough and no expectoration yesterday or last night. Respiration free. Temperature normal.

27th January, 1899.—The patient is doing very well. There has been no cough for the past five days. Expectoration *nil*. No recurrence of dyspnœa. Respiration quite free. No rales. Feels stronger and wishes to go home.

Discharged.—Relieved.

TINCTURE **Adhatoda Vasica.**

Name.—Moonesawmy.

Disease.—Bronchitis Acute (Whooping cough).

Age.—Five years. Sex. Male.

Admitted 19th January, 1899.

Admitted into hospital for fever and cough, said to be of ten days' duration.

History.—Mother states that about ten days ago the child had a slight cold and cough, which increased after two days, attended with fever.

On admission.—Morning temperature normal, evening, 102°; cough very troublesome, and expectoration scanty and mucous. On auscultation mucous rales heard all over the chest; no dullness on percussion.

Treatment.—Tinct. Adhatoda Vasica . . ♏xx.
Spt. Chlform. . . ♏x.
Aqua Menth. Pip. ad. . . ℥ss.
T. D.

Ol. Ricini ʒiii.

Stat.

22nd January, 1899.—Cough was very troublesome last night. Expectoration mucoid and difficult to bring up. Temperature normal. Bowels moved three times after the oil.

23rd January, 1899.—Cough very much better and expectoration easier. Sputum mucoid, no fever. Mucous rales still audible over chest.

24th January, 1899.—Cough almost *nil* during the day, but very troublesome during the night, and vomits just after. Expectoration scanty and mucous.

26th January, 1899.—Has a whoop during a fit of cough since yesterday, which is worse during nights. The cough is very severe, and lasts for 2 or 3 minutes at a time, and is relieved after vomiting.

MADRAS.

Clinical Reports.

Temperature is keeping normal. Bowels regular. Takes all his nourishment. Sputum still scanty and mucous.

Treatment.—Add. Pot. Bromidi gr. ij. to each dose of mixture.

28th January, 1899.—Cough is still troublesome at nights. Very little expectoration. Vomits at times. Temperature is keeping normal. Chest free, except slight mucous rales audible here and there over the lungs. Plays about all day; whoop still continues.

30th January, 1899.—Cough is still the same. Severe at nights. Very little expectoration. Sputum mucous. Temperature has been normal. Bowels regular, whoop is still continuing.

Treatment.—Tinct. Camphor. Co. . . . ♏v.
Mixt. Adhatoda Vasica . . . ℥ss.
T. D.

2nd February, 1899.—Cough is still troublesome. Sputum mucous and scanty. He is otherwise doing well.

4th February, 1899.—Whoop continues during cough. Vomits occasionally. Cough is not so very troublesome; expectoration is the same. Temperature is keeping normal. Bowels moved once every day.

6th February, 1899.—Cough is not so troublesome. Expectoration very little; whoop still continues.

8th February, 1899.—Cough is very much better, expectoration very little, whoop is still continuing, but not so often. Temperature normal. Bowels regular. Appetite very good.

11th February, 1899.—Doing very well, with the exception of a slight cough occasionally.

Discharged.—Cured.

TINCT. Adhatoda Vasica.

Name.—Chinnayan. *Occupation.*—Syce.
Disease.—Asthma. *Residence.*—Alooverpett.
Age.—Sixty years. *Admitted.*—23rd January, 1899

Admitted for difficulty of breathing and cough of four years' standing.

History.—States that he had been subject to asthmatic attacks for the past four years. The present attack came on about five months ago, and has not subsided yet. As he was getting worse, he sought admission. The attacks were coming on daily.

On admission, there was great difficulty of breathing, with a sense of constriction within the chest. On auscultation, sibilant

rhonchus audible over both lungs. Cough frequent and troublesome. Expectoration scanty and mucous.

Treatment.—Tinct. Adhatoda Vasica . . ʒss.
Spt. Chloroform . . ♏xx.
Aquæ Menth. Pipi. ad. . . ℥i.
Ft. Mist. T. D.

25th January, 1899.—The dyspnœa has subsided a little this morning. Cough is still troublesome and frequent. Expectoration scanty and mucous and difficult to bring up. Temperature 100° yesterday evening, and 99° this morning.

26th January, 1899.—Dyspnœa better. Cough still the same. Expectoration easier. Sputum muco-purulent and increased in quantity. Temperature 100° yesterday evening, and 99° this morning. Bowels not moved.

Treatment.—Mixt. Sennæ Co. . . . ℥ii.
Stat.

Continue mixture.

27th January, 1899.—No dyspnœa. Mucous rales still audible over lungs. Expectoration less muco-purulent. Cough somewhat troublesome at nights. Temperature is keeping normal. Bowels regular. Takes all his food.

Treatment.—Continued.

29th January, 1899.—Cough is very much better. Expectoration less and easy to bring up sputum mucous. No dyspnœa. Temperature normal. Bowels regular. He is not able to take rice. Put on milk diet.

31st January, 1899.—Doing well.

2nd February, 1899.—Cough is the same as at last report. No dyspnœa. There are still mucous rales heard over the lungs, more over the right.

4th February, 1899.—There is not much improvement since last report.

6th February, 1899.—Cough was rather troublesome last night. Had a slight attack of dyspnœa. Expectoration a little difficult and mucoid. Sibilant and sonorous rhonchi heard over both the lungs. Appetite not good. Bowels moved regularly. Temperature normal.

8th February, 1899.—Had no dyspnœa last night. Cough is still troublesome. Expectoration scanty.

10th February, 1899.—Cough is the same. Breathing easier. Sputum still scanty and mucous.

MADRAS.

Clinical Reports.

12th February, 1899.—Very little better this morning.

14th February, 1899.—He is much the same. Cough still troublesome at night. Expectoration not free, and slightly muco-purulent. Temperature is keeping normal, and the bowels regularly moved.

16th February, 1899.—There has been no attack of dyspnœa since the 6th. The lungs are not free yet. Sonorous rales still audible here and there. Cough troublesome. Expectoration scanty and difficult.

18th February, 1899.—He is much in the same state.

20th February, 1899.—There has been very little improvement since last report.

22nd February, 1899.—The cough has a great deal subsided. Expectoration is easy and sputum muco-purulent. On auscultation mucous rales audible in front and back of chest. Percussion sounds normal. Bowels regular. Appetite fair. Temperature normal.

25th February, 1899.—No attack of dyspnœa since 6th. There is still cough, especially at night. Wants to go home to see his family.

Discharged.—Relieved.

TINCT. Adhatoda Vasica.

Name.—Vedagheri. | *Admitted.*—8th February 1899.
Disease.—Asthma.

Admitted for cough and difficulty of breathing said to be of 10 days' duration.

History.—States that he has been subject to asthmatic attacks for the past ten years. The dyspnœa used to come on at irregular intervals. The last attack came on about two months ago, and the cough and the difficulty of breathing are still continuing.

Physical examination.—Sonorous rhonchi heard anteriorly and posteriorly over both the lungs. Expectoration difficult and scanty. Sputum slightly muco-purulent. Cough is severe, especially at nights. Complains of pain over the chest owing to the exertion in coughing. Temperature normal. Bowels regular. Appetite good.

Treatment.—Tinct. Adhatoda Vasica . . ʒss.
Spt. Chloroform. . . . ♏xx.
Aquæ Menth. Pip. ad. . . ℥i.

Stat.

MADRAS.

Clinical Reports.

10th February, 1899.—The dyspnœa has subsided. Cough is still a little troublesome, especially at night. Expectoration easier and muco-purulent; less in quantity.

12th February, 1899.—Very much better. Cough very slight. Expectoration less.

Physical signs.—Slight mucous rales heard here and there anteriorly. Breathing free and easy.

13th February, 1899.—Discharged at his own request.

Relieved.

F. J. CRAWFORD, *Major, M.D., I.M.S.*

Adhatoda Vasica.

EXPECTORANTS.

A. Name of Drug—	Adhatoda Vasica.
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion.	Stimulating expectorant, producing an increase of mucus from the smaller bronchial tubes. Does not alter the secretion in any way, except that it tends to render the mucus more liquid, thereby facilitating expectoration. Does not produce any nausea or vomiting and has a tendency to subside any undue irritation of the mucous membrane of the bronchial tubes, and the cough becomes gradually lessened under its use.
(2) *Sedative* Expectorant (Depressant, nauseant, increases secretion, lowers blood pressure, *e.g.*, Ipecac.)	
C. Preparations used—	Tincture.
D. Method of Administration and Doses-	ʒss. of the Tincture with 20 minims of Spt. Chloroform in ʒi of Peppermint water, three times a day.
E. Remarks—	The Tincture was tried in the following cases: (1) *Asthma of four years' duration.*—An old woman of 60 years of age was admitted

Record of results of observations.

	for asthma and put on the ordinary treatment for 30 days. She had no spasmodic attacks of dyspnœa after admission, but complained of the severity of the cough and inability to expectorate freely. She was then given the Tincture in ʒss. doses, three times a day, for 11 days, and found it very effective. She was greatly relieved and left the hospital in good spirits. (2) Acute bronchitis followed by whooping cough in *a boy of five years of age.*—In this case the drug alone was found of no avail in the later stages. It did good in facilitating expectoration at the outset. It was afterwards continued with Bromide of Potassuim and Compound Tincture of Camphor, and the patient was discharged relieved in 24 days. (3) Hindu, male of 60 years, *asthma of four years' duration.*—In this case, although the attacks were much modified and the frequency in a great measure reduced after the administration of the drug, still the patient was suffering from the cough for some time. He was discharged, relieved, after more than a month's trial. (4) Asthma of 10 years' duration, adult male. The patient was relieved in six days.

Adhatoda Vasica (Tinct).

Opinion.—This drug, in the form of tincture, has some effect in lessening the tenacity of thick mucous secretion in the later stages of acute bronchitis. It seems also to relieve painful spasm and dyspnœa in the acute stages, where inflammation is present.

F. J. CRAWFORD, *Major, M.D., I.M.S.,*

Acting Surgeon, 4th District,

Madras.

APPENDIX XLVII. C.

FORM No. X.

ASSAM.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	Adhatoda Vasica.
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g.*, Squill).	Stimulating expectorant and antispasmodic.
(2) *Sedative* Expectorant. (Depressant, nauseant). Increase secretion; lower blood pressure (*e.g.*, Ipecacuanha).	
C. Preparations used—	The Tincture.
D. Method of Administration, and Doses—	Administered in the form of a (cough) mixture, combined with syrup or honey and glycerine, in ʒi doses, every 4 or 6 hours.
E. Remarks—	I have very little experience of its antispasmodic properties, but its chief use, as a stimulating expectorant in promoting the secretion of the bronchial mucous membrane, was productive, in my hands, of beneficial results; used with success in catarrhal conditions, bronchitis, influenza, and as an antispasmodic much relief was obtained from its administration as a "Linctus" in the distressing and hacking cough in a case of phthisis.
F. Signature and Designation of Reporting Officer, also Date—	CHAS. BANCROFT, *Civil Medical Officer, Garo Hills.* *The 6th April 1899.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. X.

ASSAM.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	Adhatoda Vasica.
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g.*, Squill).	Stimulant expectorant.
(2) *Sedative* Expectorant. (Depressant, nauseant). Increase secretion, lower blood pressure (*e.g.*, Ipecacuanha).	
C. Preparations used—	Tincture Adhatoda.
D. Method of Administration, and Doses—	By mouth in half drachm doses.
E. Remarks—	I have tried it every four hours in some cases alone, and in some cases along with other expectorant medicines. It acts as a stimulant expectorant, and the patients felt much relieved by the use of 4 and 5 doses. In some cases complete recovery was the result.
F. Signature and Designation of Reporting Officer, also Date—	CHANDRA NATH CHAND, *Hospital Assistant,* *Shillong.* *The 9th April 1899.*

D

CLINICAL RETURNS
Adhadoda.

APPENDIX XLVII. C.

FORM No. X.

ASSAM.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	Adhatoda Vasica.
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g.*, Squill).	Expectorant stimulant.
(2) *Sedative* Expectorant. (Depressant, nauseant). Increase secretion; lower blood pressure (*e.g.*, Ipecacuanha).	
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	Five-minim doses.
E. Remarks—	Gave relief in two cases of bronchitis, lessened the cough.
F. Signature and Designation of Reporting Officer, also Date—	G. HALL, *Major, I.M.S., Offg. Civil Surgeon, Goalpara.* *The 2nd March 1899.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

CLINICAL RETURNS:
Adhatoda.

FORM No. X.

ASSAM.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	Adhatoda Vasica.
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e g*, Squill)	
(2) *Sedative* Expectorant. (Depressant, nauseant). Increase secretion; lower blood pressure (*e g.*, Ipecacuanha).	Sedative expectorant. (Depressant, but not nauseant). Increases secretion and lowers blood pressure.
C. Preparations used—	Tincture. Proof spirit tincture 2½ oz. to the pint.
D. Method of Administration, and Doses—	By mouth; dose, m 10 to 40. Combined with other expectorants, such as Tinct. Hyoscyami, Spirit Ammoniæ Aromatic, etc.
E. Remarks—	Beneficial in coryza and bronchitis. It was used in combination with Liqr. Ammoniæ Acetatis, Tinct. Hyoscyami and Tinct. Aconiti in acute bronchitis, and in combination with Tinct. Scillæ Spirit. Ammoniæ Aromatic, and Tinct. Camphor. Co. in chronic bronchitis.
F. Signature and Designation of Reporting Officer, also Date—	BRINDABAN CHANDRA SARKAR, *Hospital Assistant, Nowgong Dispensary.*

Countersigned,

J. McNAUGHT, *Honorary Captain,*
Civil Medical Officer,
Nowgong, Assam

CLINICAL RETURNS: Adhatoda.

APPENDIX XLVII. C.

FORM No. X.

ASSAM.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	**Adhatoda Vasica.**
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g.*, Squill).	An excellent antispasmodic and expectorant.
(2) *Sedative* Expectorant. (Depressant, nauseant). Increase secretion; lower blood pressure (*e.g.*, Ipecacuanha).	Tried in bronchitis. At first secretion increased and subsequently gradually decreased.
C. Preparations used—	Tincture Adhatoda.
D. Method of Administration, and Doses—	Dose one to two drachms, with water, thrice daily.
E. Remarks—	I have used it and found good effects in asthma and lung diseases.
F. Signature and Designation of Reporting Officer, also Date—	KHAIRUDDIN, *Hospital Assistant, In Sub-Medical charge of Charitable Dispensary, Sibsagar.* *The 26th December 1898.*

APPENDIX XLVII. D. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. X.

PANJAB.

Record of results of observations.

EXPECTORANTS.

A. Name of Drug—	**Adhatoda Vasica.**
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g.*, Squill).	Yes, in almost all cases it acted as stimulant expectorant.
(2) *Sedative* Expectorant. (Depressant, nauseant). Increase secretion; lower blood pressure (*e.g.*, Ipecacuanha).	In no case was depressant nausea observed but secretion of mucus was increased, and it was brought out easily.
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	Dose—½ fluid drachm, three or four times a day in adult.
E. Remarks—	This drug was used in 18 cases of acute and chronic bronchitis, coryza, and in almost all the cases found of much use in checking cough, dyspnœa, asthma and making the expectorant easy. It was given in ʒss doses, in water, three times a day for two to four days. It was also tried in one case of bad cough in chronic pneumonia, but without much success.
F. Signature and Designation of Reporting Officer, also Date-	SAHIB DITTA MALL DHINGRA, R. S., *Assistant Surgeon, Gurdaspur*

The 18th March 1899.

APPENDIX XLVII. E.

FORM No. X.

BURMA.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	Adhatoda Vasica.
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g.*, Squill).	Yes, slightly.
(2) *Sedative* Expectorant. (Depressant, nauseant). Increase secretion; lower blood pressure (*e.g.*, Ipecacuanha).	
C. Preparations used—	Tincture Adhatoda Vasica.
D. Method of Administration, and Doses—	In dram doses by the mouth thrice daily.
E. Remarks—	Has been used on several cases of Bronchitis Chronic. This action has not been very definite and I should say not as effective as some of the drugs now in ordinary use.
F. Signature and Designation of Reporting Officer, also Date.	W. D. INNES, *Assistant Surgeon,* for *Civil Surgeon, Rangoon.*

TO PARAS 75, 85, 104 AND 115 OF THE REPORT.

FORM No. X.

BURMA.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	Adhatoda Vasica.
B. Action—	
(1) *Stimulant* Expectorant, increase vascularity and alter secretion (e.g., Squill).	
(2) *Sedative* Expectorant (Depressant, nauseant). Increase secretion; lower blood pressure (e.g., Ipecacuanha).	
C. Preparations used—	Tincture
D. Method of Administration, and Doses—	Used in half drachm doses
E. Remarks—	I have used this in but a few cases of Bronchitis and recovery from Pneumonia, and do not think it is as effective as Ipecacuanha.
F. Signature and Designation of Reporting Officer, also Date	T. W. STEWART, *Captain, I.M.S., Civil Surgeon, Akyab.* *The 18th March 1899.*

CLINICAL RETURNS.

Adhatoda.

APPENDIX XLVII. E.

FORM No. X.

BURMA.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	Tincture **Adhatoda Vasica** was tried as an expectorant in several cases of Acute Bronchitis and from the relief afforded, I believe it to be a useful remedy of that class. In one or two cases of asthma, associated with Bronchitis, its action was beneficial in combination with other antispasmodics. I have known the dry leaves of this drug used as cigarettes by native practitioners in cases of spasmodic asthma with benefit. Probably its action in these cases is the same as stramonium.
B. Action— (1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g.*, Squill). (2) *Sedative* Expectorant. (Depressant, nauseant). Increase secretion; lower blood pressure (*e.g.*, Ipecacuanha).	
C. Preparations used—	
D. Method of Administration, and Doses—	
E. Remarks—	
F. Signatures and Designation of Reporting Officer, also Date.	S. MOVLIS, *Civil Surgeon, Maubin.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. X.

BURMA.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	**Adhatoda Vasica.**
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g*, Squill).	
(2) *Sedative* Expectorant. (Depressant, nauseant). Increase secretion; lower blood pressure (*e.g.*, Ipecacuanha).	Is a sedative expectorant, a bit nauseant and increases secretion.
C. Preparations used—	The Tincture.
D. Method of Administration and Doses—	Administered in doses varying from m. xx to ʒi, every 4 hours, in an ounce of camphor water.
E. Remarks—	Was tried in 24 cases of Chronic and Sub-acute Bronchitis and Bronchial catarrh, also 3 cases of Phthisis pulmonalis and 3 cases of Asthma. With the exception of 10 cases out of 24 it was found efficacious and successful. It failed in all the 3 cases of Phthisis. Two out of the three cases of Asthma were greatly relieved. The full dose of ʒi causes nausea and griping and therefore had to be reduced to m. xx which was found sufficient.
F. Signature and Designation of Reporting Officer, also Date.	E. P. FRENCHMAN, *Major, I.M.S.*, *Civil Surgeon.* BASSEIN; *The 19th March 1899.*

CLINICAL RETURNS.

Adhatoda.

APPENDIX XLVII. E.

FORM No. X.

BURMA.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	Adhatoda Vasica.
B. Action—	
(1) *Stimulant* Expectorant, increase vascularity and alter secretion (*e g.*, Squill).	1. No appreciable effect when tried in cases of Bronchitis, and Asthma and Phthisis.
(2) *Sedative* Expectorant (Depressent, nauseant). Increase secretion; lower blood pressure (*e g*, Ipecacuanha).	2 There seemed to be little or no sedative action, and it seemed to increase the spasm in Asthma, it had little or no effect on the secretion as far as could be gathered
C. Preparations used—	Tincture
D. Method of Administration and Doses—	20 minims in water In one case it was combined with Ammon Carb, Tincture Scillæ and Tincture Camphor Compound.
E. Remarks—	When used by itself its results are distinctly disappointing in my opinion Some cases are attached in which the drug was used.
F. Signature and Designation of Reporting Officer, also Date.	C NORMAN BENSLEY, *Major, I.M.S.*, *Civil Surgeon Toungoo.* *The 25th April 1899*

FORM No. X.

BURMA.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	Adhatoda Vasica.
B. Action—	
(1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g.*, Squill).	
(2) *Sedative* Expectorant. (Depressant, nauseant). Increase secretion; lower blood pressure (*e.g.*, Ipecacuanha)	Sedative Expectorant to increase secretion and lower blood pressure.
C. Preparations used—	Tincture prepared from the leaves.
D. Method of Administration, and Doses—	Half a drachm three times a day, by the mouth.
E. Remarks—	Seems to have done good in several cases of Acute Bronchitis, but the results were not so satisfactory as those of Vin. Ipecacuanha and Tincture Camphor Compound.
F. Signature and Designation of Reporting Officer, also Date.	K. PRASAD, *M.B., Capt., I.M.S., Civil Surgeon, Sagaing.* *The 1st April 1899.*

APPENDIX XLVII. E.

FORM No. X.

BURMA.

Record of results of observations.

EXPECTORANTS.	
C. Preparations used—	Tincture Adhatoda Vasica.
D. Method of Administration, and Doses—	A drachm of the tincture in an ounce of water, thrice times a day.
E. Remarks—	Used in one case of Asthma during attack and one of Bronchial Catarrh. No appreciable effect in patient suffering from Asthma. Symptoms relieves in case of Bronchial Catarrh.
F. Signature and Designation of Reporting Officer, also Date—	DOLBY, *Civil Surgeon Bhamo.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. X.

BURMA.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	**Adhatoda Vasica.**
B. Action— (1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e g.*, Squill).	Expectorant.
(2) *Sedative* Expectorant (Depressant, nauseant). Increase secretion; lower blood pressure (*e g.*, Ipecacuanha).	Yes.
C. Preparations used—	Tincture Adhatoda.
D. Method of Administration, and Doses—	Twenty to forty minim doses, three or four times a day.
E. Remarks—	Tincture given in 20 minim doses t. d. appeared to have no effect in a case of Bronchitis till increased from 30 to 40 minim doses four times a day when the effect was apparent. Expectoration, which was tenacious and stringy, became free and easily expelled; patient wa under treatment for five days and was discharged cured. It failed in a case of asthma given in 3 grain doses g. d. Has not had a chance of being tried in Infantile and puerpral convulsions Is similar to Ipecacuanha in its properties, but much feebler. Tried in a case of Pneumonia, 1 grain stage in doses of 20 minim t. d. Three doses were given. The first dose produced sickness of stomach and vomiting, which continued for over one hour which appeared to relieve the patient, as he reported that the cough was better. The second and third doses produced no vomiting or sickness of stomach, toleration being established; action similar to Ipecacuanha in its emetic properties. Has no useful febrifuge or antipyretic effect in fever. Slightly diaphoretic in action. Tincture Adhatoda expectorant possesses the properties of Ipecacuanha.
F. Signature and Designation of Reporting Officer, also Date—	J. M. A. MADDOX, *L.R.C. & S E., Civil Surgeon, Mogaung.*

APPENDIX XLVII E.

FORM No. X.

BURMA.

Record of results of observations.

EXPECTORANTS.	
A. Name of Drug—	Adhatoda Vasica.
B. Action— (1) *Stimulant* Expectorant; increase vascularity and alter secretion (*e.g.*, Squill). (2) *Sedative* Expectorant (Depressant, nauseant). Increase secretion; lower blood pressure (*e.g.*, Ipecacuanha).	Slight expectorant, but much inferior to Ipecacuanha.
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	One dose, thrice a day in water.
E. Remarks—	In two cases in which it was used there was slight increase of secretion, but, as stated above, it was found of far inferior to Ipecacuanha.
F. Signature and Designation of Reporting Officer, also Date—	A. R. P. RUSSELL, *Major, I.M.S.*, *Civil Surgeon, Mandalay.* *The 30th October 1899.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

BURMA.

Experiment with Tincture Adhatoda Vasica.

Case No. 1.—Ralar, a Hindoo male, was admitted to hospital on 17th October 1898 for Pulmonary Phthisis of three months' duration. The cough was troublesome and the expectoration contained some blood. The patient was very anæmic.

Treatment.—Mixture Phthisis i dram containing Carb. am. Tr. Scillæ Tr. Camphor compound to which Tr. Adhatoda m. xx was added to each dose.

18th October, 1898.—Cough was better and the mixture continued and was discharged relieved on 21st October 1898.

Case No. 2.—Kokee, a Karen male, was admitted for ulcer on 21st October 1898 under treatment; the ulcer was getting better, but on 12th November 1898, he was suffering from cough with slight expectoration. Tr. Adhatoda m. x with water 1 dram was given three times a day, the cough was no better, and he was discharged cured of the ulcer on 21st November 1898, but the cough still persisted though the medicine was continued.

Case No. 3.—Kather Bux came to hospital as an out-door patient on 12th November 1898, complaining of troublesome cough of a spasmodic character especially at night.

Physica lexamination revealed harsh vesicular breathing with Rhoncal and Sibillant rales heard all over the chest; a few coarse crepitations were heard in his right apex at the end of expiration. The vocal frecuntus did not increase, and there was no dullness on percussion. Tr. Adhatoda m. xx aquamod 1 dram was given three times a day. He came back on 13th November 1898. The patient states that the cough was worse, and that he did not get any sleep at all last night and declined to take the medicine again.

Case No. 4.—Ahtero, a fairly nourished Karen male, was admitted to hospital for Bronchitis on 15th November 1898.

The patient complained of pain in the front of chest and there was a troublesome cough.

16th November, 1898.—The cough was better.

17th November, 1898.—The medicine was continued and the cough appear to be a little less.

18th November, 1898.—Condition about the same.

19th November, 1898.—Discharged relieved from hospital.

Case No. 5.—Thoomeetha, a Karen male, age 40, was admitted to hospital on 23rd November 1898 for cough of three years' duration.

CLINICAL RETURNS:

Adhatoda.

APPENDIX XLVII. E.

He had a fall previous to his illness. Blood was present at times with his expectoration.

23rd Novmeber, 1898.—He was given Adhatoda mixture (Tr. Adhatoda m. xx aquamod 1 drachm three times a day after meals and expectorant pill of Pil Scillæ and Morphia three times a day.

24th November, 1898.—Cough about the same.

25th November, 1898 Ditto

26th November, 1898 Ditto

27th November, 1898.—The chest was examined, upper part of the outer side of chest and the infra-clavicular regions were flattened.

Movement of chest pretty regular.

Perussim.—There is dullness over the base of left lung and slight dullness on the right side.

Ansultation. Anteriorly left lung.

Tubular breathing on the left infra-clavicular region accompanied by occasional crepitation at the end of inspiration of a gargling character. Cavernous breathing was heard in the right infra-clavicular region. Moist sounds as well as showers of crepitations heard at the end of expiration, indicating the presence of vormea.

C. S. NORMAN BENSLEY, *Major, I.M.S.,*
Civil Surgeon, Toungoo.

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

CLINICAL RETURNS.

Alstonia

APPENDIX XLVIII. A.

FORM No IV.

BOMBAY.

Record of results of observations.

ANTIPERIODICS. **FEBRIFUGES:** **ANTIPYRETICS.**	
A. Name of Drug—	Alstonia scholaris.
B. Action—	
I *Lower the body temperature in Pyrexia—*	
(a) Lessen heat production (thermogenesis)	No
(b) Promote heat loss (thermolysis.)	No.
II. *Check periodically recurring Pyrexia.*	No.
III. *Check periodically recurring maladies such as Neuralgia*	Not tried
C. Preparations used—	Tinct Alstonia scholaris.
D. Method of Administration, and Doses	The tincture in ½ drachm doses every second hour.
E. Remarks—	Sufficient opportunities did not present themselves for the trial of this drug
F. Signature and Designation of Reporting Officer, also Date—	DATTU GANESH SABNIS, *Assistant Surgeon* Submitted through— J. P GREANY, *Lt.-Col. M.D. I.M.S.* POONA, *The 27th February 18[illegible].*

APPENDIX XLVIII. A.

FORM No IV.

HYDERABAD, SIND.

Record of results of observations.

ANTIPERIODICS.

FEBRIFUGES:

ANTIPYRETICS.

A. Name of Drug—	Alstonia scholaris.
B. Action—	
I. *Lower the body temperature in Pyrexia—*	Reduces the temperature slightly.
(*a*) Lessen heat production (thermogenesis).	
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	Appears to check periodical attacks of fever.
III. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	By the mouth, in 40 m. doses, in an ounce of water, four times a day.
E. Remarks—	This drug was used in one case of ordinary ague, for four days.
F. Signature and Designation of Reporting Officer, also Date –	A. STREET, *Capt., I.M.S.*, *Acting Civil Surgeon, Hyderabad, Sind.*

HYDERABAD, SIND;

The 20th March 1899.

APPENDIX XLVIII. B. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. IV

TANJORE, MADRAS.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES:	
ANTIPYRETICS.	
A. Name of Drug—	Alstonia scholaris.
B. Action—	
I. *Lower the body temperature in Pyrexia—*	Yes.
(*a*) Lessen heat production.	Yes.
(*b*) Promote heat loss .	Yes.
III. *Check periodically recurring maladies, such as Neuralgia*	Yes, in the one case it completely cured neuralgia when previously Arsenic was tried and had failed.
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	20-30 minims, three times daily.
E. Remarks—	The drug was used in 14 cases of ague, in all of which it caused the temperature to fall steadily to normal in a short time; no perspiration was induced but the urine was observed to be increased and high colored. In one case of pyrexia, 104°, it reduced the temperature to 99° in three days. The drug was then omitted, when the temperature rose to 104°. The drug was again administered, when the temperature again fell to 96°. It was then stopped and Quinine in 5 gr. doses was given, which checked the periodicity of the fever. Of the 14 cases of ague, 8 were in-patients, whose cases were carefully noted, 6 were out-patients. Of these, it is recorded that they did not come after the first day, perhaps because the fever had declined. 4 of the patients had enlarged spleen, but no effect on that organ was detected.
F. Signature and Designation of Reporting Officer, also Date—	H. A. F. NAILER, *Lt.-Col., M.B., I.M.S.* *Acting District Medical and Sanitary Officer.* TANJORE, *The 25th April 1890.*

CLINICAL RETURNS:

Alstonia.

APPENDIX XLVIII. B.

FORM No. IV.

MADRAS.

Record of results of observations.

ANTIPERIODICS.

FEBRIFUGES:

ANTIPYRETICS.

A. Name of Drug—	Alstonia scholaris.
B. Action—	No observable therapeutic effect witnessed from its use.
I. *Lower body temperature in Pyrexia.*	
(a) Lessen heat production (thermogenesis).	
(b) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	
III. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	ʒss to ʒi.

E. Remarks—

F. Signature and Designation of Reporting Officer, also Date —	W. A. LEE, *Lt.-Col., I.M.S.*, *Surgeon, 1st District.*

MADRAS;

The 27th May 1899.

APPENDIX XLVIII. C. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

CLINICAL RETURNS.

Alstonia.

FORM No. IV.

ASSAM.

Record of results of observations.

TONICS.

A. Name of Drug—	Alstonia scholaris.
B. Action—	Astringent, alterative-tonic and febrifuge.
(1) *Stomachic Tonic*; increase appetite and digestion—	
(*a*) Simple bitter (*e.g.*, Calumba).	
(*b*) Aromatic bitter (*e.g.*, Cascarilla).	
(2) *Nervine Tonic* (*e.g.*, Strychnia).	
(3) *Cardiac Tonic* (*e.g.*, Digitalis).	
(4) *Blood Tonic.*	
C. Preparations used—	The Tincture.
D. Method of Administration, and Doses—	In the form of a mixture only, combined with Tincture of Opium (m. x) in dysentery, and with the Infusion of Gentian in bowel complaints (diarrhœa), and with official bitters (chiretta), orange peel and Nux-Vomica, as an alterative and tonic. *Doses.—In dysentery* ʒi doses with Tinct. of Opium, m. x made up with Peppermint water, thrice daily. *In diarrhœa* ʒss dose with Spts. Chloroform and Infusion Gentian, every 4 hours. *As alterative tonic* ʒi doses, combined with orange peel, Nux-Vomica and Aqua Chloroformi.
E. Remarks—	A valuable remedy in diarrhœa and dysentery: in the latter disease it proved very beneficial in advanced cases, and was found most efficient as a "stomachic" in restoring alimentary tone in convalescence and debility, following malarial fevers.
F. Signature and Designation of Reporting Officer, also Date—	CHAS. BANCROFT, *Civil Medical Officer,* *Garo Hills.* *The 6th April 1899.*

CLINICAL RETURNS

Alstonia.

APPENDIX XLVIII. C.

FORM No. IV.

ASSAM.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES.	
ANTIPYRETICS.	
A. Name of Drug	Alstonia scholaris.
B. Action—	
I. *Lower the body temperature in Pyrexia—*	
(1) Lessen heat production (thermogenesis)	No appreciable effect.
(2) Promote heat loss (thermolysis)	
II. *Check periodically recurring Pyrexia.*	No effect.
III. *Check periodically recurring maladies, such as Neuralgia*	Not observed.
C. Preparations used—	
D. Method of Administration, and Doses—	Tincture *Dose*—From 1-2 drachms
E. Remarks—	Of no practical use.
F. Signature and Designation of Reporting Officer, also Date—	E. E. WATERS, *Capt., I.M.S.* *The 31st March 1899.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. IV.

ASSAM.

Record of results of observations.

ANTIPERIODICS. FEBRIFUGES: ANTIPYRETICS.	
A. Name of Drug—	Alstonia scholaris.
B. Action—	
I. *Lower the body temperature in Pyrexia—*	
(*a*) Lessen heat production (thermogenesis).	
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	Used to check periodically recurring pyrexia.
III. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	Tinct. Proof spirit tincture containing 2½ oz. of dried bark to the pint.
D. Method of Administration, and Doses—	By mouth, dose m. 10 to 40. Combined with Tinct. Cinchona and Inf. Quassia.
E. Remarks—	It was used in fever, at remission, three times a day, in combination with Tinct. Cinchona and Inf. Quassia. Three or four days after its administration it was found beneficial. Checking periodically recurring pyrexia, but the result was not permanent.
F. Signature and Designation of Reporting Officer, also Date—	BRINDABAN CHANDRA SARKAR, *Hospital Assistant, Nowgong Dispensary.*

Countersigned,

J. McNAUGHT, *Honorary Captain,*
Civil Medical Officer,
Nowgong, Assam.

CLINICAL RETURNS:

Alstonia.

APPENDIX XLVIII. C.

ASSAM.

Remarks on the action of *Alstonia scholaris* in the treatment of Dysentery.

The following summaries of cases have been made from daily notes recorded by Khan Bahadur Azhar Hussein, the Hospital Assistant in charge of the Sadar Dispensary:—

Case I.—Hindu, male, æt. 35, cultivator, a native of Hindustan, but long resident in Assam.

Admitted into hospital on 8th December, 1898 Had been ill for four months, suffering from malaria and dysentery. Not obviously anæmic though spleen much enlarged. Stools scanty with blood and mucus. Temperature usually somewhat above normal.

Ordered Tr. Alstonia scholaris 1-2 drachm t. d. s.

Patient left the hospital on 30th December, 1898, at his own request, much relieved.

Case II.—Hindu, male, æt. 36, private servant. Native of Darbhanga but had lived two years in Assam.

Admitted into hospital on 7th December, 1898. States that he has been suffering from fever for two months past. On examination, was emaciated, spleen enlarged, and legs dropsical; suffers from diarrhœa. Urine S. G. 1015. No albumen nor sugar.

On 10th December, 1898, the dropsical symptoms increased and two days later dysentery supervened. Daily temperature varying from normal to 102° F.

On 13th December, 1898, Tinct. Alstonia was administered in 1-2 drachm doses, three times daily, to the exclusion of all other drugs. Milk diet. From this date patient improved markedly. From 27th onwards the temperature remained approximately normal, and on 30th he was discharged from hospital at his own request. On discharge the following note was made of his condition:—"The dysentery has stopped and all dropsical symptoms have disappeared, the enlargement of the spleen remaining much as it was."

Case III.—Hindu, female, æt. 10. Native of Gauhati.

Admitted into hospital, 18th September, 1898. She had been suffering for some five months before admission from frequent attacks of fever. On admission she was very anæmic and emaciated with a large spleen and œdematous swelling of the feet and ankles. Urine S. G. 1015. No sugar nor albumen.

She had been under treatment in hospital for some three months when she developed an attack of dysentery on 24th December 1898.

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT. CLINICAL RETURNS: Alstonia.

ASSAM.

She was placed on ten minims of Tinct. Alstonia t. d. s., other medicinal treatment being stopped.

On 3rd January the symptoms of dysentery had subsided, though the temperature still rose slightly above normal at evening.

Remarks.—From the above observations it appears that Alstonia scholaris is a remedy of value in the treatment of dysentery, quieting the symptoms of active disease both with speed and certainty.

E. C. HARE, *Major, I.M.S.*,
Civil Surgeon, Gauhati.

CLINICAL RETURNS:
Alstonia.

APPENDIX XLVIII. C.

FORM No. IV.

ASSAM.

Record of results of observations.

ANTIPERIODICS.

FEBRIFUGES:

ANTIPYRETICS.

A. Name of Drug—	**Alstonia scholaris.**
B. Action—	
I. *Lower the body temperature in Pyrexia—*	Tried in ague. In some cases Alstonia acted as purgative, and lowered temperature.
(*a*) Lessen heat production (thermogenesis).	
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	
III *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	Tinct. **Alstonia.**
D. Method of Administration, and Doss—	*Dose.*—One to two drachms, with one ounce of water, thrice daily.
E. Remarks-	By using the Tincture **Alstonia** fever occasionally relapsed.
F. Signature and Designation of Reporting Officer, also Date—	KHAIRUDDIN, *Hosptl. Asstt. in Medl. Ch. of Charitable Dispensary, Sibsagar.* SIBSAGAR; *The 26th December 1898.*

FORM No. IV.

PANJAB.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES:	
ANTIPYRETICS.	
A. Name of Drug—	**Alstonia scholaris.**
B. Action—	Antiperiodics, febrifuges.
I. *Lower the body temperature in Pyrexia—* (*a*) Lessen heat production (thermogenesis). (*b*) Promote heat loss (thermolysis).	The few cases in which this drug was administered were among the out-door patients, and the physiological effects could not have therefore been observed.
II. *Check periodically recurring Pyrexia.*	Yes, it did check this.
III. *Check periodically recurring maladies, such as Neuralgia.*	It was not tried in neuralgia.
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	*Dose*—½ fluid drachm in an ounce of water.
E. Remarks—	Before I could definitely report on the efficacy of Alstonia as antiperiodic and febrifuge, I would like to use it in a few more cases. It did prove useful, however, as antiperiodic, in 3 fever cases out of 5, that it was tried.
F. Signature and Designation of Reporting Officer, also Date—	SAHIB DITTA MAL DHINGRA, R.S., *Assistant Surgeon, Gurdaspur.* *The 18th March 1899.*

CLINICAL RETURNS:

Alstonia.

APPENDIX XLVIII. E.

FORM No. IV.

BURMA.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES:	
ANTIPYRETICS.	
A. Name of Drug—	Alstonia scholaris.
B. Action—	
I. *Lower the body temperature in Pyrexia—*	
(*a*) Lessen heat production (thermogenesis).	
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	Slightly.
III. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	Tinct. Alstonia scholaris.
D. Method of Administration, and Doses—	By the mouth in doses of one drachm, thrice daily.
E. Remarks—	This drug was used in several cases of fevers, both malarial and others. In some there was a slight decrease in temperature and in a few others no recurrence, but it was very doubtful to say whether the drug was the cause of the change. Its action, I should say, is not as good as quinine.
F. Signature and Designation of Reporting Officer, also Date—	W. D. INNES, *Assistant Surgeon,* for *Civil Surgeon, Rangoon.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. IV.

BURMA.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES:	
ANTIPYRETICS.	
A. Name of Drug—	**Alstonia scholaris.**
B. Action—	
I. *Lower the body temperature in Pyrexia—*	
(*a*) Lessen heat production (thermogenesis.	
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	
III. *Check periodically recurring maladies, such as Neuralgia.*	*Nil.*
C. Preparations used—	Tinct. Alstonia scholaris.
D. Method of Administration, and Doses—	In drachm doses, thrice daily.
E. Remarks—	The drug seemed to take the place of quinine, and in mild cases of fever it is effective. I have had no experience of its action in severe cases of malarial fever. A few years ago I had a case of malarial fever where quinine could not be given owing to its producing a distressing skin erruption. I used the Tincture Alstonia scholaris with most satisfactory results.
F. Signature and Designation of Reporting Officer, also Date—	T. W. STEWART, *Capt., I.M.S., Civil Surgeon, Akyab.* *The 18th May 1899.*

APPENDIX XLVIII. E.

FORM No. VI.

BURMA.

Record of results of observations.

ASTRINGENTS.	
A. Name of Drug—	Alstonia scholaris.
B. Action—	
(1) Direct intestinal constringent (*e.g.*, Tannic Acid).	(1) Direct intestinal astringent.
(2) Remote specific astringent and styptic, in the blood and system, arresting discharge: or bleeding, *e.g.*, of uterus, lungs, etc. (*e.g.*, Gallic Acid ?).	(2) Lessen the secretion.
(3) Act on organs excreting them, as kidneys, skin, etc.	
(4) External local action; as styptic, astringent, antiseptic, etc.	Not tried externally.
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	Twenty minims four times a day in water, or in a mixture containing Tincture Cannabis Ind. and Lig. Hydrag. Perchlor.
E. Remarks—	It appears to be useful in certain cases of diarrhœa and dysentery; the cases are attached in which the drug was tried.
F. Signature and Designation of Reporting Officer, also Date.	C. NORMAN BENSLEY, *Major, I.M.S., Civil Surgeon, Toungoo.* *The 25th April 1899.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT. CLINICAL RETURNS: Alstonia.

Experiment with Tincture Alstonia—An Astringent and Bitter Tonic.

BURMA.

Case No. 1.—Moke, a Karen, male, age 45 years, was admitted to hospital for dysentery on 16th October, 1898. The stools contained some blood and slime and attended with griping pain during defæcation. The patient states that he had been suffering from it for the last four months. The patient is weak, appetite bad, and there was slight enlargement of the spleen.

Tr. Alstonia m. xx, Liq. Hydragyri Perchlorid m. xx, Tr. Cannabis Indica m. x, Aquam ad. 1 dram. was given three times a day.

17th October, 1898.—Is better, medicine continued.

18th	do.	Do.	do.
19th	do.	Do.	do.
20th	do.	Mixt. Iron, Quinine and Arsenic 1 dram.	
21st	do.	Is improving.	
22nd	do.	Do.	
23rd	do.	Do.	
24th	do.	Do.	
25th	do.	Do.	
26th	do.	Do.	
27th	do.	Do.	

28th do. The patient was operated on for fatty tumour of the neck and was discharged cured on 6th November 1898.

Case No. 2.—A Hindu, male, age 55 years, was admitted to hospital for external piles and diarrhœa, passing six or seven stools night and day. On 24th November, 1898 mixture of Tinct. Alstonia m. xx, Tinct. Aqua 1 dram was given three times a day and the patient was put on milk diet.

25th November, 1898.—The symptoms were about the same.

26th do. The stools became less frequent, *viz.*, four stools only during night and day.

The quantity of blood passed was also much less.

27th November, 1898.—Three stools, but they are still loose.

28th	*do.*	Do.	do.
29th	*do.*	Do.	do.
30th	*do.*	Do.	do.

APPENDIX XLVIII. E.

BURMA.

1st December, 1898.—The patient is feeling better, but he still passed three loose stools.

2nd December, 1898.—Same

3rd	*do.*	Do.
4th	*do.*	Do.
5th	*do.*	Do.
6th	*do.*	Patient states that he is feeling better.
7th	*do.*	He absconded from hospital.

Case No. 3.—A Eurasian male, W. M. Charles D'Silva, aged 20 years, was admitted to hospital for dysentery of 18 hours' duration on 4th January, 1899. States that he passed stools some 20 times a day. On admission to hospital his stools were found to contain some blood and slime.

Ol. Ricini 1 dram, Tr. opii m. x was given.

5th January, 1899—Tr. Alstonia m. xx, Aquam ad. 1 dram was given every four hours.

6th January, 1899.—Only one stool, but there is no slime or blood, though he still complained of griping pain.

9th January, 1899.—Discharged from hospital cured.

Case No. 4.—Kobi, a Burman, male, age 46 years, was admitted to hospital for malarial cachexia on 9th January, 1899. There was ascites of abdomen. States that he first had diarrhœa, and when it stopped, the œdema began to appear. The urine was scanty, but not albuminous. No enlargement of spleen or liver. He was given Ferr. Sulph. gr. ii, Quinine Sulph. gr. v, Mag. Sulph. gr. xx, and aqua Men. Pip. 1 dram three times a day. He was progressing satisfactorily till the 13th, when he passed several stools containing slime, but no blood was present. He was now given castor oil 1 dram. The next day Mixt. Alstonia 1 dram, *viz.*, Tinct. Alstonia m. xx, aquam ad. 1 dram was given three times a day.

15th January, 1899.—The stools were less frequent.

19th do. He was discharged relieved.

Case No. 5.—Maung Tun W, a Burman, male, age 27 years, was admitted to hospital on 16th October, 1898, for debility and cough of one month's duration. A mixture containing—

Vin. Ipecac. m. x,

Tr. Camphor Co. m. xx,

Tr. Scillæ m. xi,

Aquam ad. 1 dram

was given him for his troublesome cough.

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT. CLINICAL RETURNS

Alstonia.

BURMA.

18th October, 1898.—The cough was better, but he began to pass loose motions, but there was no blood or slime present.

Tr. Alstonia m. xx, Aquamad 1 drachm was given three times a day.

19th October, 1898.—Bowels moved once and stool was healthy.

The patient was discharged relieved of his debility on 14th November 1898.

C. N. BENSLEY, *Major, I.M.S.,*
Civil Surgeon, Toungoo.

CLINICAL RETURNS: Alstonia.

APPENDIX XLVIII. E.

FORM No. I.

BURMA.

Record of results of observations.

TONICS.	
A. Name of Drug—	Alstonia scholaris.
B. Action—	
(1) *Stomachic Tonic;* increase appetite and digestion—	Gives tone to the muscular fibres of the stomach like other simple bitters.
(*a*) Simple bitter (*e.g.*, Calumba).	
(*b*) Aromatic bitter (*e.g.*, Cascarila).	
(2) *Nervine Tonic* (*e.g.*, Strychnia).	
(3) *Cardiac Tonic* (*e.g.*, Digitalis).	
(4) *Blood Tonic.*	Improves the blood also.
C. Preparations used—	Tincture prepared from the bark.
D. Method of Administration, and Doses—	One drachm three times a day by the mouth.
E. Remarks—	Beyond a simple bitter tonic after fevers this drug does not seem to be of much use as an antiperiodic and febrifuge.
F. Signature and Designation of Reporting Officer, also Date.	K. PRASAD, *M.B., Capt., I.M.S., Civil Surgeon, Sagaing.* *1st April 1899.*

FORM No. VI.

BURMA.

Record of results of observations.

ALTERATIVES.	
A. Name of Drug—	
C. Preparations used—	Tincture Alstonia scholaris.
D. Method of Administration, and Doses	Half a drachm in one case, and one drachm in the other, in an ounce of water, three times a day.
E. Remarks—	Used in two cases of acute dysentery with little or no change in one and slight improvement in the other.
F. Signature and Designation of Reporting Officer; also Date.	J. DOLBY, *Civil Surgeon, Bhamo*

CLINICAL RETURNS

Alstonia.

APPENDIX XLVIII. E.

FORM No. I.

BURMA.

Record of results of observations.

TONICS.	
A. Name of Drug—	Alstonia scholaris—Tincture.
B. Action—	
(1) *Stomachic Tonic*; increase appetite and digestion—	Somewhat increased appetite. In one case in which it was administered in which there was some diarrhœa, and it showed astringent properties.
(a) Simple bitter (*e.g.*, Calumba).	
(b) Aromatic bitter (*e.g.*, Cascarilla).	
(2) *Nervine Tonic* (*e.g.*, Strychnia).	
(3) *Cardiac Tonic* (*e.g.*, Digitalis).	
(4) *Blood Tonic.*	
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	One dram thrice a day before food, diluted with water.
E. Remarks—	
F. Signature and Designation of Reporting Officer, also Date.	A. R. P. RUSSELL, *Major, I.M.S.*, *Civil Surgeon, Mandalay.* *30th October 1899.*

APPENDIX XLIX. A. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

CLINICAL RETURNS.

Calotropis procera.

Conf. with Report, pp. 8, 9, 11, 37, 46, 51, 53, 61; App., p. 268.

FORM No. VI.

BOMBAY.

Record of results of observations.

ASTRINGENTS.	
A. Name of Drug—	Calotropis procera.
B. Action—	
(1) Direct intestinal constringent (*e.g.*, Tannic Acid).	The action cannot be said to be astringent, but the drug has a good effect in checking dysentery.
(2) Remote specific astringent and styptic, in the blood and system, arresting, discharges or bleeding, *e.g.*, of uterus, lungs, etc. (*e.g.*, Gallic Acid ?).	
(3) Act on organs excreting them, as kidneys, skin, etc.	
(4) External local action; as styptic, astringent, antiseptic, etc.	
C. Preparations used—	Tincture Calotropis procera.
D. Method of Administration, and Doses—	The tincture, in water, one ounce. Dose—m. xv or m. xx, 4 times or 6 times a day.
E. Remarks—	The drug was found useful in acute and sub-acute dysentery. After being given, the mucus and blood in the stools was lessened, and bile-stained loose fæcal matter was passed, at first in abundance, and gradually lessening until the patient recovered. In cases of chronic diarrhœa no good effect was observed.
E. Signature and Designation of Reporting Officer, also Date—	L. F. CHILDE, *Capt., I.M.S.* SIR J. J. HOSPITAL, BOMBAY; *The 12th March 1899.*

CLINICAL RETURNS

Calotropis procera.

APPENDIX XLIX. A.

FORM No. VI.

BOMBAY.

Record of results of observations.

EMETICS.	
A. Name of Drug—	Calotropis procera.
B. Action—on—	
(1) *Glandular system.*	
(2) *Serous membranes.*	
(3) *Mucous membranes.*	
(4) *Cutaneous tissue.*	
(5) *Anti-syphilitic.*	
C. Preparations used—	The Pulvis Calotropis procera supplied to me.
D. Method of Administration, and Doses—	Grains 30 or 40 given as powder in water.
E. Remarks—	This drug usually brought on vomiting from ½ to 1 hour after administration; usually there were also nausea, giddiness and discomfort in the stomach.
F. Signature and Designation of Reporting Officer, also Date—	L. F. CHILDE, *Capt., I.M.S.* SIR J. J. HOSPITAL, BOMBAY; *The 12th March 1899.*

Bombay.

Table showing the action of Tinct. Calotropis procera on Dysenteric stools.

Name.	Age.	Disease.	Dose.	Number of days administered.	Remarks.
1. Limjibhoy Rastamji	20	Dysentery	Ms. xv, 4 times a day.	4 days	The patient on admission used to pass mucus and slight quantity of blood with the stools, the quantity of fæcal matter being scanty. Next day, after the administration of the drug, the fæcal matter was abundant, with excess of bile and very slight quantity of mucus. The stools were copious. On the following day the mucus disappeared altogether, stools becoming normal. Patient discharged cured. No nausea.
2.	45	Chronic bronchitis and emphysema, dysentery (mild type).	Ms. xv, 4 times a day.	3 days	Patient complained of looseness of bowels and tormina and tenesmus. Stools contain much mucus and scanty fæcal matter. After the mixture, stools copious containing a large quantity of fæcal matter, well formed; mucus disappeared on the 3rd day. Complained of slight nausea after the administration of the drug. No effect on cough.

Bombay.

Table showing the effect of Tinct. Calotropis procera on Diarrhœa.

Name	Age.	Disease.	Dose.	Number of days administered.	Remarks.
Pestonji Cursetji	50	Chronic Diarrhœa	Ms. xv, 4 times a day.	...	On admission patient was in a very feeble condition. Heart very feeble. Stools very frequent, liquid, with very slight bile and slight mucus. The next day (after 60 ms. of the tincture) stools were well formed, with more bile and no mucus. They were also less frequent. The next day the tincture was given six times, and the condition remained nearly the same for two days, but the stools were less frequent. On the following day stools again liquid and very frequent, the pulse very feeble Stimulant Mixture was ordered, and Pulv. Calotropis, grs. v, with Mist. Bismuth et Morph. ℥ — given every 4 hours (6 doses). Next day patient was worse and died the same night.
Ardeshir Rustam	65	Dysentery	Ms. xv, every 4 hours (6 doses).	3 days	The general condition of the patient very bad. The mixture had very little effect on the stools. Patient having died of exhaustion.
Cursedji Motabha	16	Dysentery	Ms xv, every 4 hours increased to ms. xx every 4 hours.	7 days	Duration of disease 7 days. Mucus and blood passed with very scanty fæcal matter. Stools very frequent. Had griping. Next day, frequency a little less. More fæcal matter in the stools, some mucus and very slight quantity of blood. Next day the same. On the 4th day mucus and blood disappeared. Stools copious and well formed: 7 in 24 hours. The mixture was given for the next day, and patient was quite well.

Bombay.

Table showing the action of Pulvis Calotropis procera (Mudar-root bark) as an Emetic.

Name	Age	Disease	Dose.	Vomit.	Stools.	Duration between administration and result	Remarks
1. Shaik Malik	30	Chronic Bronchitis and Emphysema.	Grs 30	Five times	None	One hour and a half	Slight giddiness after vomiting, vomiting came on with nausea. Complains of discomfort in the epigastrum.
2. Luximon Kapoo.	32	Rheumatism	30	None	None	... ..	Suffered from nausea and discomfort
Ditto	"	Ditto	40	One	One containing an excess of bile.	One hour	Severe headache, nausea and giddiness Passed one round-worm with the vomited matters
3. Bhagoo Natha	22	Convalescent Pneumonia	30	One	Three liquid motions containing an excess of bile.	$\frac{3}{4}$ of an hour	Complained of headache but no giddiness. Nausea present.
4. Seyyad Mohideen	21	Incipient phthisis	30	Two	None	$\frac{1}{2}$ an hour	Nausea marked No headache, no giddiness.
5. Dharoo Dawlat	35	Lacerated wound	30	Four times	Nine liquid stools, an hour after the powder.	One hour	Nausea marked. No headache, no giddiness.
	35	Hypoglossal paralysis	30	None	None	......	No effect at all.

SIR J. J. HOSPITAL,
BOMBAY,
The [illegible]th March 1899.

L. F. CHILDE, *Capt., I.M.S.*

CLINICAL RETURNS:

Calotropis procera.

APPENDIX XLIX. A.

FORM No. II.

BOMBAY.

Record of results of observations.

ALTERATIVES.	
A. Name of Drug—	Calotropis procera (POWDER AND TINCTURE.)
B. Action—on—	
(1) *Glandular system.*	Not marked.
(2) *Serous membranes.*	Do.
(3) *Mucous membranes.*	Do.
(4) *Cutaneous tissue.*	Do.
(5) *Anti-syphilitic.*	Do.
C. Preparations used—	Powder and Tincture.
D. Method of Administration, and Doses—	Powder, in 5 to 10 grain doses, 3 times a day. Tincture, in ʒss doses do.
E. Remarks—	Both the powder and tincture appeared to have a good effect in mild cases of dysentery, lessening and stopping the mucous discharge.
F. Signature and Designation of Reporting Officer, also Date—	DATTU GANESH SABNIS, *Assistant Surgeon.* *The 21st April 1899.* Submitted by— J. P. GREANY, *Lieut.-Col., M.D., I.M.S., Civil Surgeon, Poona.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. IV.

HYDERABAD, SIND.

Record of results of observations.

ANTIDYSENTERIC.	
A. Name of Drug—	Calotropis procera.
B. Actions—	Seems to act much in the same as Ipecac.
C. Preparations used—	Pulvis Calotropis procera.
D. Method of Administration, and Doses—	By the mouth, in two powders of 10 grs. each.
E. Remarks—	Was used with marked benefit in one case of acute dysentery.
F. Signature and Designation of Reporting Officer, also Date—	A. STREET, *Capt., I.M.S.,* *Acting Civil Surgeon, Hyderabad, Sind.* *The 20th March 1899.*

CLINICAL RETURNS.

Calotropis procera.

APPENDIX XCIX, B.

FORM No. II.

TANJORE, MADRAS.

Record of results of observations.

ALTERATIVES.	
A. Name of Drug—	Calotropis procera.
B. Actions—	
C. Preparations used—	Tincture and Powder.
D. Method of Administration, and Doses—	
E. Remarks—	The drug was administered in two cases of constitutional syphilis and no improvement was effected. In three cases of acute dysentery 10-15 grs. were administered on an empty stomach thrice daily, with milk diet, one case improved much. One case absconded from hospital after a slight improvement. In the 3rd case the dysenteric character of the stools was altered. No mucus or blood was passed, and the stools became watery yellowish, there was considerable nausea and irritability of stomach. In 30 grs. dose it acted as an efficient emetic in one case.
F. Signature and Designation of Reporting Officer, also Date—	H. A. F. NAILER, Lt.-Col., I.M.S., *Acting District Medical and Sany. Officer,* TANJORE; *The 25th April 1899.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

CLINICAL RETURNS

Calotropis procera.

FORM No. II.

MADRAS.

Record of results of observations.

ALTERATIVES.	
A. Name of Drug—	Calotropis procera.
B. Action—on—	Both the powdered root and the tincture prepared therefrom excite much gastric irritation, severe vomiting invariably following their exhibition.
(1) *Glandular system.*	
(2) *Serous membranes.*	
(3) *Mucous membranes*	
(4) *Cutaneous tissue.*	
(5) *Anti-syphilitic.*	
C. Preparations used—	As above stated
D. Method of Administration, and Doses—	Powdered root, 5 to 20 grains. Tincture, 30 to 60 minims
E. Remarks—	
F. Signature and Designation of Reporting Officer, also Date—	W. A. LEE, *Lt.-Col., I.M.S.,* *Surgeon, 1st District.* MADRAS, *The 27th May 1899.*

APPENDIX XLIX. C.

FORM No. II.

ASSAM.

Record of results of observations.

ALTERATIVES.	
A. Name of Drug—	Calotropis procera.
B. Action—on—	
(1) *Glandular system*	
(2) *Serous membranes.*	
(3) *Mucous membranes.*	
(4) *Cutaneous tissue*	
(5) *Anti-syphilitic.*	
C. Preparations used—	Pulvis Calotropis procera.
D. Method of Administration, and Doses—	By mouth. Dose, 10 to 30 grains.
E. Remarks—	It was used in fever as a substitute for Ipecacuanha powder in ʒss dose. The patient vomited twice, half an hour after taking the medicine Purging began 6 hours after, he had 12 loose watery stools mixed with bile It very much weakened the patient, the temperature became reduced.
F. Signature and Designation of Reporting Officer, also Date—	CHANDRA KISHORE DEY, *Hospital Assistant, Jail Hospital, Nowgong.*

Countersigned,

J. McNAUGHT, *Honorary Captain, Civil Medical Officer, Nowgong, Assam.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. IX.

ASSAM.

Record of results of observations.

DIAPHORETICS.	
A. Name of Drug—	Calotropis procera.
B. Action—	Diaphoretic, alterative, tonic, emetic, and antispasmodic.
(1) Stimulant diaphoretic; stimulate sweat glands (*e.g.*, Nitrous Ether, Jaborandi).	
(2) Depressant, or Nauseant (*e.g.*, Antimony); dilate the capillaries.	
C. Preparations used—	The Pulvis Calotropis only.
D. Method of Administration, and Doses—	In mixture (suspended with mucilage and water and powder (with opium gr. $\frac{1}{2}$). DOSES—*Diaphoretic* in small doses (gr. v). *Alterative Tonic* in smaller doses (of grs. 1 to 3). *Emetic* in large doses (30, to 40 gr.).
E. Remarks—	A valuable remedy in doses from 5 to 10 grs. (combined with opium gr. $\frac{1}{2}$ thrice daily) in acute dysentery; not quite as efficient as Ipecacuanha, though less liable to produce nausea, or vomiting. In simple febrile conditions it acted beneficially as a diaphoretic (in small doses, gr. v, frequently, say, every 4 or 6 hours) producing diaphoresis, and thus relieving the pyrexial stage; also useful as an alterative tonic (in grs. 3 to 5 doses) in rheumatic affections and specific conditions (secondary syphilis). Its emetic action was marked and expeditious in a trial made in one case due to alcoholic excess; it is at present under trial in a case of leprosy.
F. Signature and Designation of Reporting Officer, also Date—	CHAS. BANCROFT, *Civil Medical Officer, Garo Hills.* *The 6th April 1899.*

CLINICAL RETURNS

Calotropis procera.

APPENDIX XLIX. C.

FORM No. X.

ASSAM.

Record of results of observations.

EXPECTORANTS.	
A. *Name of Drug*—	(*a*) Tinct Adhatoda Vasica. (*b*) Tinct Calotropis procera. (*c*) Pulv. Calotropis procera.
B. *Action*—	
(1) *Stimulant* Expectorant, increased vascularity and alter secretion (*e g.*, Squill).	Adhatoda has a slight stimulant expectorant action.
(2) *Sedative* Expectorant (Depressant, nauseant) Increase secretion; lower blood pressure (*e g*, Ipecacuanha).	Calotropis has some expectorant action, in doses of ʒi thrice daily. The secretion was increased considerably. Doses of ʒii caused free vomiting with depression, the patient's pulse rate falling considerably
C. *Preparations used*—	The drug approaches Ipecac. in its action, both as an expectorant and in the treatment of dysentery It was tried in two cases of mild dysentery and appeared to have a slight effect. In a severe and ultimately fatal case, it was useless.
D. *Method of Administration, and Doses*—	*Doses.*—As an expectorant, ʒi of each, thrice daily. As an emetic ʒii of Tinct. Calotropis, repeated if necessary. In dysentery, grains 20, thrice daily.
E *Remarks*—	
F. *Signature and Designation of Reporting Officer, also Date*—	E. E. WATERS, ... *The 31st March 1899.*

APPENDIX XLIX. D. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

CLINICAL RETURNS.

Calotropis procera.

FORM No. II.

PANJAB.

Record of results of observations.

ALTERATIVES.	
A. Name of Drug—	Calotropis (C. procera).
B. Action—on—	Said to be alterative tonic, febrifuge, diaphoretic, emetic, substitute for Ipecacuanha, good for dysentery.
(1) *Glandular system*	Observations on these points could not be made
(2) *Serous membranes*	
(3) *Mucous membranes*	
(4) *Cutaneous tissue*	
(5) *Anti-syphilitic*	
C. Preparations used—	Tincture and powder.
D. Method of Administration, and Doses—	Dose of tincture ½-1 fluid drachm. Dose of powder—3-10 grains (alterative), 30-60 grains (emetic), 5-20 grain (dysentery).
E. Remarks—	I have been unable to give a fair trial to this drug owing to suitable cases in which it is said to be useful not having come under my treatment.
F. Signature and Designation of Reporting Officer, also Date—	SAHIB DITTA MALL DHINGRA, *R.S.*, *Assistant Surgeon, Gurdaspur.* *The 18th March 1899*

CLINICAL RETURNS: Calotropis procera.

APPENDIX XLIX. E.

FORM No. VI.

BURMA.

Record of results of observations.

ASTRINGENTS.	
A. Name of Drug—	Calotropis procera.
B. Action—	
(1) Direct intestinal constringent (*e.g.*, Tannic Acid).	Acts apparently as an intestinal constringent.
(2) Remote specific astringent and styptic, in the blood and system arresting discharges or bleeding, *e g.*, of uterus, lungs, etc. (*e.g.*, Gallic Acid ?)	Not observed.
(3) Act on organs excreting them as kidneys, skin, etc.	Not noticed.
(4) External local action, as styptic, astringent, antiseptic, etc.	Not tried.
C. Preparations used—	Pulves.
D. Method of Administration, and Doses—	In powder, 10 grains doses, twice or thrice daily.
E. Remarks—	Used in 11 cases of well-marked dysentery. Eight cases were cured without other treatment, but in three cases no benefit being observed, the treatment was changed with a good result. There did not seem to be any advantage in the use of this remedy as compared with Ipecacuanha.
F. Signature and Designation of Reporting Officer, also Date—	G. I. H. BELL, *M.B., Major, I.M.S., Superintendent, Central Jail.* RANGOON; *The 14th April 1899.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

CLINICAL RETURNS:

Calotropis procera.

FORM No. II,

BURMA.

Record of results of observations.

ALTERATIVES.	
A. Name of Drug—	Pulv. Calotropis procera, was tried in several cases of acute dysentery in 5 to 15 grain doses. In 5 grain doses it produced slight nausea, but no vomiting. In 10 to 15 grain doses it produced vomiting, and its administration was followed by an improvement of the acute symptoms, but unlike Ipecacuanha its action was not so marked as an alterative.
B. Action—on—	
(1) *Glandular system.*	
(2) *Serous membranes.*	
(3) *Mucous membranes.*	
(4) *Cutaneous tissue.*	
(5) *Anti-syphilitic.*	
C. Preparations used—	
D. Method of Administration, and Doses—	
E. Remarks—	
F. Signature and Designation of Reporting Officer, also Date—	

CLINICAL RETURNS

Calotropis procera

APPENDIX XLIX. E.

FORM No. II.

BURMA.

Record of results of observations.

ALTERATIVES.	
A. Name of Drug.—	**Calotropis procera.**
B. Action—on—	
(1) *Glandular system.*	Reduces chronic enlargement of the glands and other swellings
(2) *Serous membranes*	Being depressant, it reduces the inflammation of serous and mucous membranes
(3) *Mucous membranes.*	
(4) *Cutaneous tissue.*	Its milky juice causes blisters and acts as an excellent counter-irritant.
(5) *Anti-syphilitic.*	Useful in syphilitic cases, especially in chronic rheumatism
C. Preparations used—	Tincture prepared from the root-bark. Also powder.
D. Method of Administration, and Doses—	Tincture half a drachm three times a day by the mouth Powder 3 grains as an alterative, and from 5 to 20 grains for dysentery.
E. Remarks—	The powder is a good substitute for Ipecacuanha in dysentery Tincture, in my opinion, is not so efficacious as the powder.
F. Signature and Designation of Reporting Officer, also Date—	K. PRASAD, *M B., Capt., I.M.S., Civil Surgeon, Sagaing.* *The 1st April 1899.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

CLINICAL RETURNS:

Calotropis procera

FORM No. IV.

BURMA.

Record of results of observations.

EMETICS. FEBRIFUGES: ANTIPYRETICS.	
C. Preparations used—	Pulvis Calotropis procera.
D. Method of Administration, and Doses—	Half a drachm of the powder in an ounce of warm water.
E. Remarks—	Used in two cases of ague with severe nausea. Prompt vomiting followed in both cases with relief of the sickness, but the patients complained of severe burning pain in the epigastrium, which was not present before the drug was given, and which continued for about 8 hours in each case.
F. Signature and Designation of Reporting Officer, also Date—	J. DOLBY, *Civil Surgeon, Bhamo.*

CLINICAL RETURNS:

Calotropis procera.

APPENDIX XLIX. E.

FORM No. II.

BURMA.

Record of results of observations.

ALTERATIVES.	
A. Name of Drug—	Calotropis procera.
B. Action—on—	
(1) *Glandular system*	
(2) *Serous membranes.*	
(3) *Mucous membranes.*	
(4) *Cutaneous tissue.*	
(5) *Anti-syphilitic.*	
C. Preparations used—	Pulvis Calotropis and tincture Calotropis.
D. Method of Administration, and Doses—	Pulvis 2 to 5 grains t. d. Tincture 20 to 30 m. t. d. q. d.
E. Remarks—	In a case of Jaundice the pulvis acted very well in doses of 2 grains, increased to 3 grains t d. An initial dose of 5 grains of the powder first given produced violent vomiting and purging. The pulvis should be given at first in small doses gradually increased, else the stomach won't tolerate it. It is a good substitute for Ipecac. and might be tried in cases of dysentery. The tincture given in 30 m. doses produced vomiting and purging. In 20 m. doses it, however, had not that effect; the dose should be gradually increased; as an alterative in a case of P. syphilis taken internally 20 m. doses gradually increased to 30 m. q. d, as well as applied externally as a lotion (1 drachm to 1 ounce) it had no effect. Both the pulvis and tincture when taken keep the bowels regular and appear to improve the appetite to some extent.
F. Signature and Designation of Reporting Officer, also Date—	J. M. F. MADDOX, L.R.C.P. & S.E., *Civil Surgeon, Mogoung.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

CLINICAL RETURNS: Calotropis procera.

BURMA.

Calotropis procera.

This preparation was used in 10 grain doses thrice a day in two cases of dysentery.

No benefit was apparent.

APPENDIX XLIX, E.

FORM No. II.

BURMA.

Record of results of observations.

ALTERATIVES.	
A. Name of Drug—	Calotropis procera.
B. Action—on—	
(1) *Glandular system*	
(2) *Serous membranes.*	
(3) *Mucous membranes.*	
(4) *Cutaneous tissue.*	
(5) *Anti-syphilitic.*	
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	One drachm doses thrice a day in water.
E. Remarks—	This drug was used by itself and also with Potassium Iodide. No alterative action was detected.
F. Signature and Designation of Reporting Officer, also Date—	A. R. P. RUSSELL, *Major, I.M.S.,* *Civil Surgeon, Mandalay.* *The 30th October 1899.*

APPENDIX I. A. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. IV.

BOMBAY.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES:	
ANTIPYRETICS.	
A. Name of Drug –	Picrorhiza Kurrooa.
B. Action —	
I *Lower the body temperature in Pyrexia*—	Yes.
(*a*) Lessen heat production (thermogenesis).	
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	No.
III. *Check periodically recurring maladies, such as Neuralgia.*	Not tried
C. Preparations used –	Tincture.
D. Method of Administration, and Doses —	Half a drachm doses every 2nd hour brought down the fever, in 3 cases, below normal.
E. Remarks —	This drug, from the few trials it was given, appears to act as a febrifuge, but as an antiperiodic it is very much inferior to Quinine and Cinchonine.
F. Signature and Designation of Reporting Officer, also Date —	DAITU GANESH SABNIS, *Assistant Surgeon.* Submitted through— J. P. GREANY, *Lieut.-Col., M.D., I.M.S., Civil Surgeon.* POONA; *The 27th February 1899.*

CLINICAL RETURNS:

Picrorhiza.

APPENDIX L. A.

FORM No. IV.

HYDERABAD, SIND.

Record of results of observations.

ANTIPERIODICS.

FEBRIFUGES

ANTIPYRETICS.

A. Name of Drug—	**Picrorhiza Kurrooa.**
B. Action—	
I. *Lower the body temperature in Pyrexia:*	Reduces the temperature slightly.
(*a*) Lessen heat production (thermogenesis).	
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	Appears to check periodical attacks of fever.
III. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	By the mouth, in 40 m. doses, in an ounce of water, four times a day.
E. Remarks—	This drug was used in two cases of ordinary ague. In one, for 3 days, and the other for 6 days.
F. Signature and Designation of Reporting Officer, also Date—	A. STREET, *Capt., I.M.S.,* *Acting Civil Surgeon, Hyderabad, Sind.* HYDERABAD, SIND; *The 20th March 1899.*

FORM No. IV.

MADRAS.

Record of results of observations.

ANTIPERIODICS. FEBRIFUGES: ANTIPYRETICS.	
A. Name of Drug—	Picrorhiza Kurrooa.
B. Action— I. *Lower the body temperature in Pyrexia.*	Yes.
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	20 minims.
E. Remarks—	The drug was given in two cases of ague. It reduced the temperature in both. But failed as an antiperiodic, the temperature did not fall below normal as in Alstonia scholaris. Was tried for 20 days in a case of enlarged spleen with no results. In a case with a history of fever every alternate day it was administered and no pyrexia was observed; this is a doubtful case of ague. In 6 cases treated as out-patients for ague, 5 failed to appear a second time, one came and reported favourably and ceased to attend on the third day.
F. Signature and Designation of Reporting Officer, also Date—	H. A. F. NAILER, *Lt.-Col., I.M.S.,* *Acting District Medical and Sany. Officer.* TANJORE; *The 25th April 1899.*

APPENDIX L. B.

FORM No. IV.

MADRAS.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES:	
ANTIPYRETICS.	
A. Name of Drug –	Picrorhiza Kurrooa.
B. Action—	
I *Lower the body temperature in Pyrexia.* (*a*) Lessen heat production (thermogenesis) (*b*) Promote heat loss (thermolysis). II. *Check periodically recurring Pyrexia.* III. *Check periodically recurring maladies, such as Neuralgia.*	Given in several cases of fever of a malarious type, both intermittent and remittent, and found to possess febrifuge properties, *viz.*, moderate diaphoresis with coincident fall in temperature of 1 or 2 degrees. It is a useful bitter tonic in convalescence from fevers, etc.
C. Preparations used—	Tincture.
D. Method of Administration, and Doses -	Half to one fluid drachm every 4 hours.
E. Remarks—	
F. Signature and Designation of Reporting Officer, also Date—	W. A. LEE, *Lieut.-Col., I.M.S., Surgeon, 1st District.* MADRAS; *The 27th May 1899.*

ASSAM.

Notes on the action of Picrorhiza in the treatment of Malarial Fevers.

The following are summaries of notes made by Khan Bahadur Azhar Hussein, the Hospital Assistant in charge of the Sadar Dispensary, in-patients under his own treatment.

Case 1.—Hindu, male, æt. 8. Admitted into hospital on 3rd January 1899, suffering from severe chronic malarial fever. He was very emaciated and anæmic. Liver and spleen both enlarged, the former enormously. No jaundice or dropsy. Bowels normal. Neither albumen nor sugar found in the urine.

On 3rd January 1899 patient was placed on drachm doses of Tinc. Picrorhiza twice daily. The treatment was continued without intermission up to 14th, and was then discontinued. The patient does not seem to have benefited much by the treatment.

Case 2.—Hindu, male, æt 35. Admitted on 20th November 1898, for fever. During the first six days of his residence in hospital he was under treatment with Quinine Sulphate, ten grain doses morning and evening, but with no apparent effect. On 27th November 1898 Quinine was discontinued and drachm doses of Tinct. Picrorhiza given three times daily in its place. The temperature continued to register between 100 and 103 till it fell to below normal on the morning of 2nd December. On the 5th the patient died.

Case 3.—Hindu, male, æt. 30. Admitted on 25th November 1898, said to be suffering from malarial fever. On admission temperature registered 104·2. Castor oil was given on the morning of the 26th, followed by two 10 grain doses of Sulphate of Quinine. The same evening the temperature again rose to 103·4, and on the following morning Tinct. Picrorhiza was exhibited in drachm doses thrice daily. On the evening of the 27th the temperature was registered at 100, and on each subsequent evening up to the 2nd December at 99 or thereabouts. On 3rd December the patient left the hospital.

Case 4.—Hindu, female, æt. 18. Admitted on 2nd December 1898, suffering from slight fever. Morning temperature 99·6, evening temperature 100·2. Slight enlargement of the spleen. Ordered Tinct. Picrorhiza one drachm three times daily. Patient remained under treatment till 11th December 1898. On that date temperature registered M. 99, E. 99·6. On the following day the patient left the hospital.

Case 5.—Hindu, male, æt. 35. Admitted on 9th December 1898. A recent arrival in Gauhati. States that he was in good health

till 15 days ago, and since then has had fever every evening. On admission, temperature=102·8. No enlargement of liver or spleen. Urine normal. Bowels costive. Complains of pain in the region of the umbilicus. Ordered drachm doses of Tinct. Picrorhiza three times daily. Temperature registered slightly above normal the next evening, and from the 11th to 16th, the date of discharge, was not above 98·4.

Case 6.—Hindu, male, æt. 9. Admitted on 11th December 1898. Has long been a resident of Assam. On admission was much emaciated, anæmic and dropsical. Liver much enlarged and apparently occupying "the whole upper part of the abdomen. Spleen also enlarged, "perceptible below the lower margin of the liver." Fever of a low type present, but no jaundice. Urine sp. g. 1012. No albumen, no sugar. On 30th December, 20 days after admission, patient was placed on 10 minims of Tinct. Picrorhiza, three times daily. The drug had no effect on the disease. On 10th January the patient died.

Case 7.—Muhammadan, female, æt. 16. Admitted on 29th December 1898, suffering from fever with anæmia and great emaciation. There was excessive enlargement of the spleen, but no dropsy or jaundice. Temperature rises daily towards evening. Placed on half drachm doses of Tinct. Picrorhiza. Every day while she was under treatment the temperature continued to rise to 100° or 101°. On the 11th she absconded from hospital.

E. C. HARE, *Major, I.M.S.,*
Civil Surgeon, Gauhati.

TO PARAS. 75, 85, 104, AND 115 OF THE REPORT.

CLINICAL RETURNS:
Picrorhiza.

FORM No. IV.

ASSAM.

Record of results of observations.

ANTIPERIODICS. FEBRIFUGES: ANTIPYRETICS.	
A. Name of Drug—	Picrorhiza Kurrooa.
B. Action—	
I. *Lower the body temperature in Pyrexia.*	In long standing malarial fever Picrorhiza decreased the temperature gradually and produced good effects.
(*a*) Lessen heat production (thermogenesis).	
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	
III. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	*Dose*—One to two drachms, with one ounce of water, thrice daily.
E. Remarks—	
F. Signature and Designation of Reporting Officer, also Date—	KHAIRUDDIN, *Hospital Assistant, in Medical Charge of Dispensary.* SIBSAGAR; *The 26th December 1898.*

CLINICAL RETURNS:

Picrorhiza.

APPENDIX L. C.

FORM No. IV.

ASSAM.

Record of results of observations.

ANTIPERIODICS. FEBRIFUGES: ANTIPYRETICS.	
A. Name of Drug—	Picrorhiza Kurrooa.
B. Action—	
I. *Lower the body temperature in Pyrexia.*	
(*a*) Lesson heat production thermogenesis). (*b*) Promote heat loss (thermolysis).	No appreciable effect
II. *Check periodically recurring Pyrexia.*	No effect.
III. *Check periodically recurring maladies, such as Neuralgia.*	Not observed.
C. Preparations used—	Tincture Picrorhiza.
D. Method of Administration, and Doses—	From 1-2 drachms.
E. Remarks—	This tincture is practically useless. It was used as long as possible in a well-marked case of remittent fever without the slightest effect—the patient eventually dying.
F. Signature and Designation of Reporting Officer, also Date—	E. E. WATERS, *Capt., I.M.S.* *The 31st March 1899.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. IV.

ASSAM.

Record of results of observations.

ANTIPERIODICS. **FEBRIFUGES:** **ANTIPYRETICS.**	
A. Name of Drug—	Picrorhiza Kurooa.
B. Action— I. *Lower the body temperature in Pyrexia—* (*a*) Lessen heat production (thermogenesis) (*b*) Promote heat loss (thermolysis). II. *Check periodically recurring Pyrexia.* III. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	
D. Method of Administration, and Doses—	
E. Remarks—	I have tried Tinct. Picrorhiza and Tinct. Alstonia in half a drachm dose every 4 hours in malarial cases as well as in influenza. The former had no effect, in some cases patients become very weak by the use of 3 or 4 doses. There was only one case in which the patient recovered, but I am in doubt whether the cure was due to the effect of medicine or to nature. The latter was also used every 4 hours in many cases. In some cases the patients perspired and fever abated. In one case with enlarged spleen I have tried this medicine three times a day and red ointment applied externally and found the spleen diminished in size in a week or 10 days.
F. Signature and Designation of Reporting Officer, also Date—	CHANDRA NATH CHAND, *Hospital Assistant, Shillong.* *The 9th April 1899.*

CLINICAL RETURNS:

Picrorhiza.

APPENDIX L. D.

FORM No. IV.

PANJAB.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES.	
ANTIPYRETICS.	
A. Name of Drug—	Picrorhiza Kurooa.
B. Action—	Antiperiodic, febrifuge.
I. *Lower the body temperature in Pyrexia*—	Yes.
(*a*) Lessen heat production (thermogenesis.)	Yes.
(*b*) Promote heat loss (thermolysis).	Yes.
II. *Check periodically recurring Pyrexia.*	Yes.
III. *Check periodically recurring maladies, such as Neuralgia.*	Yes, in fever.
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	*Dose*—Half fluid drachm in an ounce of water 3 times a day, or 4 doses every 3 hours.
E. Remarks—	This drug was tried in 3 cases of fever, during pyrexia and in the interval between the attacks, and it did act as antiperiodic and lowered the temperature when given in pyrexia.
F. Signature and Designation of Reporting Officer, also Date—	SAHIB DITTA MALL DHINGRA, *R.S.*, *Assistant Surgeon, Gurdaspur.* *The 18th March 1899.*

APPENDIX L. E. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

CLINICAL RETURNS:

Picrorhiza.

FORM No. IV.

BURMA.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES:	
ANTIPYRETICS.	
A. Name of Drug—	Tincture Picrorhiza Kurooa was tried in several cases of ague during the pyrexial stage and it was efficacious in lowering the temperature. As an antiperiodic I regret to state that its action was not so marked as other officinal drugs of the same class. In five of the six cases experimented with, it failed to check the paroxysm. In increased doses (1 to 2 fl. dr.) it produced gastric disturbance, and troublesome vomiting was the result.
B. Action—	
I. *Lower the body temperature in Pyrexia—*	
(a) Lessen heat production (thermogenesis).	
(b) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	
III. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	
D. Method of Administration, and Doses—	
E. Remarks—	
F. Signature and Designation of Reporting Officer, also Date—	

APPENDIX L. R.

FORM No. IV.

BURMA.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES.	
ANTIPYRETICS.	
A. Name of Drug—	Picrorhiza Kurooa.
B. Action—	
I *Lower the body temperature in Pyrexia—*	
(*a*) Lessen heat production (thermogenesis).	
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring pyrexia.*	
III. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	The Tincture.
D. Method of Administration, and Doses—	M. xxx to 1 drachm in water, every 4 hours
E. Remarks—	Was used in six cases of intermittent fever, but was found useless, and therefore experiments with it were discontinued.
F. Signature and Designation of Reporting Officer, also Date—	E. P. FRENCHMAN, *Major, I.M.S.*, *Civil Surgeon* BASSEIN; *The 19th March 1899.*

TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. IV.

BURMA.

Record of results of observations.

ANTIPERIODICS.

FEBRIFUGES:

ANTIPYRETICS.

A. Name of Drug—	Picrorhiza Kurooa.
B. Action—	
I. *Lower the body temperature in Pyrexia—*	Doubtful.
(*a*) Lessen heat production (thermogenesis)	
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	Yes, to a certain extent.
II. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	Tincture prepared from the roots.
D. Method of Administration, and Doses—	One drachm three times a day by the mouth.
E. Remarks—	This drug to my mind is more a bitter tonic like Gentian or Calumba than an antiperiodic. As a tonic after fevers it seems to be a useful drug, but more than this seems doubtful.
F. Signature and Designation of Reporting Officer, also Date—	K. PRASAD, *M.B., Capt., I.M.S.*; *Civil Surgeon, Sagaing.* *The 1st April 1899.*

APPENDIX L. E.

FORM No. I.

BURMA.

Record of results of observations.

TONICS.	
A. Name of Drug—	Picrorhiza Kurpoa.
B. Action—	
(1) *Stomachic Tonic* ; increase appetite and digestion—	Yes.
(*a*) Simple bitter (*e.g.*, Calumba).	Yes.
(*b*) Aromatic bitter (*e.g.*, Cascarilla).	Yes.
(2) *Nervine Tonic* (*e.g.*, Strychnia).	Yes.
(3) *Cardiac Tonic* (*e.g.*, Digitalis).	Yes.
(4) *Blood Tonic.*	Yes.
C. Preparations used—	Tincture Picrorhiza Kurooa.
D. Method of Administration, and Doses—	20 to 30 drops in 1 ounce of water three times a day.
E. Remarks—	Appears to act as a simple bitter tonic, improving the appetite ; it has, however, a tendency to produce slight costiveness.
F. Signature and Designation of Reporting Officer, also Date—	J. M. T. MADDOX, *L.R.C.P. & S.E.*, *Civil Surgeon, Mogaung.* *The 19th April 1899.*

FORM No. IV.

BURMA.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES:	
ANTIPYRETICS.	
A. Name of Drug—	(1) Picrorhiza Kurooa. (2) Alstonia scholaris.
B. Action—	
I. *Lower the body temperature in Pyrexia—*	
(*a*) Lessen heat production (thermogenesis).	
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	
III. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	(1) Tincture Picrorhiza Kurooa. (2) Tincture Alstonia scholaris.
D. Method of Administration, and Doses—	30 minim doses of both tinctures to 1 ounce of water, 3 or 4 times a day.
E. Remarks—	Picrorhiza appears to have feeble properties as a febrifuge, whilst Alstonia has no effect at all in this direction. The latter drug, however, appeared to have expectorant properties, soothing and allaying cough. It was given in doses of 30 minim doses four times a day and appeared similar to Ipecac. in its action.
F. Signature and Designation of Reporting Officer; also Date—	J. M. T. MADDOX, *L.R.C.P. & S.E.*, *Civil Surgeon, Mogaung.*

CLINICAL RETURNS:

Picrorhiza

APPENDIX L. E.

FORM No. IV.

BURMA.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES:	
ANTIPYRETICS.	
A.—Name of Drug—	Picrorhiza Kurooa.
B. Action—	
I. *Lower the body temperature in Pyrexia—*	
(*a*) Lessen heat production (thermogenesis).	
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	Yes.
III. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	One drachm doses, thrice a day in water.
E. Remarks—	This drug was administered to a man suffering from a regular evening rise of temperature, 100° F. to 101° F. After a week of administration the temperature fell to normal and did not recur.
F. Signature and Designation of Reporting Officer, also Date—	A. R. P. RUSSELL, *Major, I.M.S., Civil Surgeon, Mandalay.* *The 30th April 1899.*

APPENDIX LI. A. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

CLINICAL RETURNS: Podophyllum

BOMBAY.

See Appendix, pp. 211-25.

FORM No. XII.

MADRAS.

Record of results of observations.

PURGATIVES.	
A. Name of Drug—	Podophyllum Emodi.
B. Action—	
(*a*) *Drastic* (*e.g.*, Gamboge). Act powerfully; cause catarrh of mucous membrane; increase glandular secretion and peristalsis.	
(*b*) *Cathertic* :—as (*a*)—but milder (*e.g.*, Jalap).	
(*c*) *Hydragogue* :—disturb osmosis; stimulate glands; increase the fluids in dejecta (*e.g.*, Elaterium).	
(*d*) *Simple purgative* (*e.g.*, Senna); actively increase peristalsis, and empty contents of intestine.	Little or no effect observed with doses up to ½ a grain. From ½ to 1½ grains it acts as a colagogue, producing dark greenish brown pultaceous evacuations. Doses in excess of 1½ grains cause severe griping.
(*e*) *Laxative or Aperient*; increase peristalsis moderately (*e.g.*, Rhubarb, Cascara).	
(*f*) *Cholagogue* :—Stimulate the liver; increase bile in stools (*e.g.*, Euonymin, Podophyllin).	
C. Preparations used—	Resin—Indian Podophyllin.
D. Method of Administration, and Doses—	Half to 1½ grains in pill.
E. Remarks—	
F. Signature and Designation of Reporting Officer, also Date—	W. A. LEE, *Lieut.-Col., I.M.S.*, *Surgeon, 1st District.* MADRAS; *The 27th May 1899.*

CLINICAL RETURNS:

Podophyllum.

APPENDIX LI. B.

FORM No. XII.

TANJORE, MADRAS.

Record of results of observations.

PURGATIVES.	
A. Name of Drug—	Podophyllum Emodi.
B. Action—	
(*a*) *Drastic* (*e.g.*, Gamboge). Act powerfully; cause catarrh of mucous membrane; increase glandular secretion and peristalsis.	
(*b*) *Cathartic* :—as (*a*)—but milder.	Yes.
(*c*) *Laxative or Aperient*; increase peristalsis moderately.	Yes.
C. Preparations used—	Resin—Indian Podophyllin.
D. Method of Administration, and Doses—	Grain ¼ at bed time, followed by 2-3 grs. in morning.
E. Remarks—	The drug 2½ grs. was administered in four cases of ague with enlarged spleen. It acted as a hydragogue cathartic, producing free purgation without griping pains. In two cases of constipation gr. ½ was administered one night without any effect, 2 grs. in the morning produced only a laxative effect; no griping.
F. Signature and Designation of Reporting Officer, also Date—	H. A. F. NAILER, *Lieut.-Col., I.M.S.,* *Actg. Dist. Medical and Sany. Officer*, TANJORE; *The 25th April 1899.*

APPENDIX LI. C. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

FORM No. XII.

ASSAM.

Record of results of observations.

PURGATIVES.	
A. Name of Drug—	Podophyllum Emodi.
B. Action—	Hydragogue cathartic, cholagogue, and alterative (in small doses).
(*a*) *Drastic* (*e.g.*, Gamboge). Act powerfully; cause catarrh of mucous membrane; increase glandular secretion and peristalsis.	
(*b*) *Cathartic* :—as (*a*)—but milder (*e.g.*, Jalap).	
(*c*) *Hydragogue* :—disturb osmosis; stimulate glands; increase the fluids in dejecta (*e.g.*, Elaterium).	
(*d*) *Simple purgative* (*e.g.*, Senna); actively increase peristalsis, and empty contents of intestine.	
(*e*) *Laxative or Aperient* : increase peristalsis moderately (*e.g.*, Rhubarb, Cascara).	
(*f*) *Cholagogue* :—Stimulate the liver, increase bile in stools (*e.g.*,) Euonymin.	

APPENDIX LI. C

FORM No. XII—contd.

ASSAM—contd.

Record of results of observations—contd.

PURGATIVES.	
C. Preparations used—	Podophylli Resin.
D. Method of Administration, and Doses—	*In Pill and Mixture.*—In the former (Pill) combined with Pil. Col. et Hyoscyami or with Aloes, Henebane and Extract Belladonna (the addition of the Belladonna being given to check griping). *In Mixture* the resin was dissolved in Rect. Spirit (grain i-ʒii) and thus converted into a form of "tincture," 6 to 10 minims of which was added to a mixture containing Ammon. Chloride, Nux-Vomica with Acid Nitro. Mur. dil. *Doses.*—As an alterative, grain $\frac{1}{12}$ combined with Quinine (grain i), Extract Belladonna (grain $\frac{1}{8}$) and Aloes (grain i). As a *hydragogue cathartic* and *cholagogue* in doses varying from $\frac{1}{8}$ to 1 grain according to individual idiosyncracy.
E. Remarks—	An efficient hepatic stimulant, causing an increased secretion of bile, used beneficially as an initial purge in cases of fever with constipation, due to torpid and inactive liver, also in combination with other hepatic stimulants, in mild hepatic congestion following malarial fever. I would here note that its purgative action is rather uncertain, in so far that a dose adequate to purge one person will be inoperative in the case of another, hence its exhibition in doses varying from $\frac{1}{4}$ to 1 grain.
F. Signature and Designation of Reporting Officer, also Date—	CHAS. BANCROFT, *Civil Medical Officer, Garo Hills* *The 6th April 1899.*

FORM No. XII.

ASSAM.

Record of results of observations.

PURGATIVES.	
A. Name of Drug—	Podophyllum Emodi.
B. Action—	
(*a*) *Drastic* (*e.g.*, Gamboge). Act powerfully; cause catarrh of mucous membrane; increase glandular secretion and peristalsis.	
(*b*) *Cathartic* :—as (*a*)—but milder (*e.g.*, Jalap).	
(*c*) *Hydragogue* :—disturb osmosis; stimulate glands; increase the fluids in dejecta (*e.g.*, Elaterium).	
(*d*) *Simple purgative* (*e.g.*, Senna); actively increase peristalsis and empty contents of intestine.	
(*e*) *Laxative or Aperient*; increase peristalsis moderately (*e.g.*, Rhubarb, Cascara).	
(*f*) *Cholagogue* :—Stimulate the liver; increase bile in stools (*e.g.*, Euonymin, Podophyllin).	Cholagogue, stimulates the liver, increases bile in stools.
C. Preparations used—	The resin made into pills with Extract Colocynth. Co. and Extract Hyoscayami.
D. Method of Administration, and Doses—	By mouth. Dose ½ to 1 grain.
E. Remarks—	It was used in Kalaazar, when bowels were constipated; to stimulate the liver and increase bile secretion, it acted well.
F. Signature and Designation of Reporting Officer, also Date—	BRINDABAN CHANDRA SARKAR, *Hospital Asstt., Nowgong Dispensary.* Countersigned, J. McNAUGHT, *Honorary Captain, Civil Medical Officer, Nowgong, Assam.*

CLINICAL RETURNS:

Podophyllum.

APPENDIX LI. C.

FORM No. XII.

ASSAM.

Record of results of observations.

PURGATIVES.	
A. Name of Drug—	**Podophyllum Emodi.**
B. Action—	
(*a*) *Drastic* (*e.g.*, Gamboge). Act powerfully; cause catarrh of mucous membrane; increase glandular secretion and peristalsis.	
(*b*) *Cathartic.*—as (*a*)—but milder (*e.g.*, Jalap).	
(*c*) *Hydragogue*:—disturb osmosis; stimulate glands; increase the fluids in dejecta (*e.g.*, Elaterium).	
(*d*) *Simple purgative* (*e.g.*, Senna); actively increase peristalsis, and empty contents of intestine.	
(*e*) *Laxative or Aperient;* increase peristalsis moderately (*e.g.*, Rhubarb, Cascara).	
(*f*) *Cholagogue*:—Stimulate the liver; increase bile in stools (*e.g.* Euonymin, Podophyllin).	Has a cholagogue and slightly hydragogue action, very similar to the Podophyllin of the Pharmacopœia.
C. Preparations used—	Podophylli Resina.
D. Method of Administration, and Doses—	Grain ¼ in powder.
E. Remarks—	
F. Signature and Designation of Reporting Officer, also Date—	E. E. WATERS, *Capt., I.M.S.* *The 31st March 1899.*

APPENDIX III. D. TO PARAS. 75, 85, 104 AND 115 OF THE REPORT.

CLINICAL RETURNS: Podophyllum.

FORM No. XII.

BURMA.

Record of results of observations.

PURGATIVES.	
A. Name of Drug—	**Indian Podophyllin.**
B. Action—	
(*a*) *Drastic* (*e.g.*, Gamboge). Act powerfully; cause catarrh of mucous membrane; increase glandular secretion and peristalsis.	
(*b*) *Cathartic*: as (*a*) but milder (*e.g.*, Jalap).	
(*c*) *Hydragogue*: disturb osmosis; stimulate glands; increase the fluids in dejecta (*e.g.*, Elaterium).	
(*d*) *Simple purgative* (*e.g.*, Senna); actively increase peristalsis, and empty contents of intestine.	
(*e*) *Laxative or Aperient*; increase peristalsis moderately (*e.g.*, Rhubarb, Cascara).	
(*f*) *Cholagogue*:—Stimulate the liver; increase bile in stools (*e.g.*, Euonymin, Podophyllin).	Cholagogue purgative.
C. Preparations used—	The powder only.
D. Method of Administration, and Doses—	By the mouth. One to two grains.
E. Remarks—	This drug was used in several cases and proved very satisfactory. There was no vomiting, no particular colic, and in every way was equal to the English drug.
F. Signature and Designation of Reporting Officer, also Date—	W. D. INNES, *Assistant Surgeon, Rangoon General Hospital.*

APPOINTMENTS.

APPENDIX LII. A.

No. 1174, dated Calcutta, the 14th August 1899.

From—The Principal, Medical College,

To—The Honorary Secretary, Central Indigenous Drugs Committee.

I have the honour to request that Major F. J. Drury, who has succeeded the late Major J. F. Evans, be appointed a member of the Indigenous Drugs Committee, *vice* Major Evans, deceased.

APPENDIX LII. B.

No. 123-I.D.C., dated the 5th September 1899.

From—LIEUT.-COL. E. G. RUSSELL, M.B., B.Sc., I.M.S., President, Central Indigenous Drugs Committee, Calcutta,

To—The Secretary to the Government of India, Home Department.

It is with much regret that I have to announce, for the information of the Government of India, the death of Rai Kanny Lall Dey, Bahadur, C.I.E., F.C.S., a member of this Committee, which took place on the 16th August 1899.

I have the honour to further ask that the Government of India would be pleased to appoint a new member of Committee to fill the vacancy thus caused.

APPENDIX LII C.

No. 1647, dated Simla, the 29th September 1899.

From—R. NATHAN, Esq., Under Secretary to the Government of India, Home Department,

To—The President, Central Indigenous Drugs Committee.

In reply to your letter No. 123-I.D.C., dated the 5th September 1899, I am directed to state that the Government of India have received with regret the news of the death of Rai Kanny Lall Dey, Bahadur, C.I.E., F.C.S., a member of the Central Indigenous Drugs Committee.

2. The Government of India are pleased to appoint Rai Chuni Lal Bose, Bahadur, M.B., F.C.S., a Chemical Examiner to the Government of Bengal and Assistant Professor of Chemistry, Medical College, Calcutta, to be a member of the Committee.

APPENDIX LII. D. TO PARAS. 113 AND 121. APPOINTMENT.

No. 527, dated Nagpur, the 18th January 1900.

From—G. SHERLOCK-HUBBARD, Esq., Assistant Secretary to the Chief Commissioner, Central Provinces,

To—The Honorary Secretary, Indian Indigenous Drugs Committee, Calcutta.

In continuation of this office letter No. 6754, dated the 5th October 1896, I am directed to inform you that Assistant Surgeon Lakshmi Narayan Choudhuri, Civil Medical Officer, Balaghat, has been appointed by the Officiating Chief Commissioner to be a member of the Sub-Committee in the Central Provinces in connection with the Indigenous Drugs Committee in place of Major H. E. Banatvala, I.M.S., on furlough.

2. Assistant Surgeon Lakshmi Narayan Choudhuri will also act as Honorary Secretary to the Sub-Committee, *vice* Major Banatvala.

APPENDIX LII. E.

No. 26-I.D.C., dated 23rd December 1899.

From—MAJOR H. E. BANATVALA, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Khandwa,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Indian Museum, Calcutta, 1, Sudder Street.

I have the honour to inform you that on my departure for England on furlough I have handed over all books and correspondence temporarily to Lieutenant-Colonel W. A. Quayle, I.M.S., Civil Surgeon, Khandwa. A local Secretary will soon be appointed, whose name will be communicated to you in due course.

APPENDIX LIII. A.

HEMP DRUGS.

No. 9435, dated the 7th August 1899.

From—The Inspector General of Civil Hospitals for Bengal,

To—The President of the Central Indigenous Drugs Committee, Calcutta.

I have the honour to forward herewith a copy of Bengal Government letter No. 4355-S.R., dated the 31st July 1899, regarding the importation of hemp drugs into Bengal, and to request that you will be so good as to favour me on an early date with your opinion as to whether the importation of hemp drugs into Bengal should be prohibited.

No. 4355-S.R., dated the 31st July 1899.

From—The Under Secretary to the Government of Bengal, Financial Department (Separate Revenue Branch), Calcutta,

To—The Inspector General of Civil Hospitals, Bengal.

In the Bill to amend the Bengal Excise Act VII of 1878, a provision was made for the levy of a differential excise duty on the importation into Bengal of exciseable articles already subject to the payment of customs duty, such as haschish and hemp drugs. The Government of India have expressed their disapproval of the provision and suggested that the importation of hemp drugs into Bengal should be prohibited under section 19 of the Sea Customs Act VII of 1878. The import of such drugs by sea into the Madras Presidency was prohibited under section 19 of the above Act in 1897 and similar prohibition has been in force in Burma since 1874. The Collector of Customs, Calcutta, who was consulted on the subject, is of opinion that the importation of hemp drugs, except for medical purposes, should be prohibited, but the Board of Revenue think that it would be awkward to restrict the importation of hemp drugs in this way. They observe that the only imports are for medical purposes, in fact for medical preparation, and if any one imported the hemp drugs for other purposes, he could evade the law prohibiting their importation by stating that they were for medical purposes. Before, however, giving their final opinion the Board request to be furnished with the opinion of the medical authorities on the question, and I am to request that you will be so good as to favour Government with an expression of your opinion in the matter at your earliest convenience.

TO PARA. 119 OF THE REPORT.

No. 117-I.D., dated 29th August 1899.

From—Lt.-Col. E. G. Russell, M.B., B.Sc., Lond., I.M.S., President, Central Indigenous Drugs Committee, Calcutta,

To—The Inspector General of Civil Hospitals, Bengal.

In reply to your No. 9435, dated the 7th instant, and enclosure, I have the honour to intimate that the members of the Central Indigenous Drugs Committee are of opinion that the importation of hemp drugs into Bengal should be prohibited.

APPENDIX LIII. B.

No. 937-D., dated Darjeeling, the 8th September 1899.

From—Col. T. H. Hendley, C.I.E., I.M.S., Inspector General of Civil Hospitals for Bengal,

To—Lieut.-Col. E. G. Russell, M.B., I.M.S., President, Central Indigenous Drugs Committee, Calcutta.

With reference to your letter No. 117-I.D.C., dated the 29th ultimo, reporting that the members of the Central Indigenous Drugs Committee are of opinion that the importation of hemp drugs into Bengal should be prohibited, I have the honour to say that I do not understand the question. Hemp drugs are of considerable value in medicine, as for example Tincture Cannabis indica. Is it intended to exclude these if obtained through a firm of Chemists, or is it proposed that the pharmaceutical preparations of hemp shall not be sold by Chemists?

No. 123-I.D.C., dated Calcutta, the 23rd September 1899.

From—Lt.-Col. E. G. Russell, M.B., B.Sc., I.M.S., President, Central Indigenous Drugs Committee,

To—The Inspector General of Civil Hospitals, Bengal.

In reply to your No. 937-D., dated the 8th instant, I have the honour to inform you that the Committee's recommendation is founded on the conviction that the term "Hemp drugs" (as used in Financial Department, Separate Revenue Branch, No. 4365-S.R., dated 31st July 1899) does not include pharmaceutical preparations of these.

IMPORTS.

APPENDIX LIII. C.

No. 3713, dated Calcutta, the 12th March 1900

From—Col. T. H. Hendley, C.I.E., I.M.S., Inspector General of Civil Hospitals for Bengal,

To—The President, Central Indigenous Drugs Committee, Indian Museum, 1, Sudder Street.

With reference to your letter No. 117-I D C., dated the 29th August 1899 I have the honour to forward herewith, for information, a copy of Bengal Government No 1565-S R,- dated the 28th February 1900, and its enclosures

No 1565-S R., dated Calcutta, the 28th February 1900

From—R. Sheepshanks, Esq., Under Secretary to the Government of Bengal, Financial Department,

To—The Inspector General of Civil Hospitals, Bengal

The undermentioned document is forwarded to the Inspector General of Civil Hospitals, Bengal, with reference to the correspondence ending with his letter No 1211-D, dated the 30th September 1899 for information

Notification No. 925-S R., dated Calcutta, the 20th February 1900

In exercise of the power conferred by section 19 of the Sea Customs Act VIII of 1878, the Governor General in Council is pleased to prohibit the bringing or taking by sea into the territories administered by the Lieutenant-Governor of Bengal of intoxicating drugs prepared from the hemp plant (*Cannabis sativa variety India*) except in the form of pharmaceutical preparations

J. F FINLAY,

Secretary to the Government of India,
Finance and Commerce Department

No. 926-S. R.

Ordered that copy be forwarded to the Government of Bengal, Financial Department, with reference to the correspondence ending with the letter from that Government, No. 522-T.F., dated the 22nd November 1899.

APPENDIX LIV. A, TO PARA. 116.

Revision and Publication of Volume I of the Report of Central Indigenous Drugs Committee.

No. 124–131, dated the 16th September 1899.

From—The Reporter on Economic Products to the Government of India,

To—The Honorary Secretary, Local Indigenous Drugs Committee.

I have the honour to forward by to-day's post copies of Report of Proceedings of the Central Indigenous Drugs Committee, Volume I and to ask the favour of your being so good as to circulate one copy for corrections and additions.

2. I desire to add that on receiving back from each of the Local Committees the copy thus circulated, steps will be taken to issue Volume I finally.

No 124-I.D.C., dated 16th September 1899.	Honorary Secretary, Local Indigenous Drugs Committee, Medical College, four copies
No 125 I.D C, dated 16th September 1899	Assistant Surgeon E. Thomas, Honorary Secretary, Local Indigenous Drugs Committee, North-West Provinces and Oudh, Agra, four copies.
No 126-I D C, dated 16th September 1899.	Major H. F. Banatvala, I.M.S, Honorary Secretary, Local Indigenous Drugs Committee, Central Provinces, Khandwa, four copies.
No. 127-I D C., dated 16th September 1899.	Captain W. D. Sutherland, I M.S., Honorary Secretary, Local Indigenous Drugs Committee, Punjab, Lahore, four copies.
No. 128-I D.C., dated 16th September 1899.	Lieutenant Colonel R. N. Campbell, I M S, Honorary Secretary, Local Indigenous Drugs Committee, Assam, Shillong, four copies
No. 129-I.D.C., dated 16th September 1899.	Lieutenant-Colonel G. T. Thomas, Honorary Secretary, Local Indigenous Drugs Committee, Burma, Rangoon, four copies.
No. 130-I.D.C., dated 16th September 1899.	Lieutenant Colonel J. Parker, M D., I.M S, Honorary Secretary, Local Indigenous Drugs Committee, Bombay, five copies.
No. 131-I D.C., dated 16th September 1899.	Major F. G. Crawford, M.D., I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Medical College, Madras, five copies.

REVISION OF REPORT.

APPENDIX LIV. B.

No. 316, dated the 20th December 1899.

Memo. from—The Civil Surgeon, Benares,

To—The Honorary Secretary, Local Indigenous Drugs Committee, North-West Provinces and Oudh, Agra.

In returning the proof copy of Report of Proceedings of the Central Indigenous Drugs Committee, Volume I, has the honour to state, with reference to his No. 16-I., dated 30th November 1899, that the Report is correct and no additions or alterations, in undersigned's opinion, seem necessary.

No. 19-I., dated Agra, the 18th January 1900.

Forwarded in original to the Honorary Secretary and Reporter, Central Indigenous Drugs Committee, No. 1, Sudder Street, Calcutta, with reference to his No. 125-I. D. C., dated 16th September 1899.

APPENDIX LIV. C.

No. 19-I.D., dated 11th October 1899.

From—Major H. E. Banatvala, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Khandwa,

To—The Hony. Secretary, Central Indigenous Drugs Committee.

With reference to your No. 126-I. D. C., dated the 16th ultimo, I have the honour to inform you that my Committee are of opinion that no corrections or additions are necessary to the Report of Proceedings of the Central Indigenous Drugs Committee, Volume I.

APPENDIX LIV. D.

No. 27, dated Shillong, the 20th January 1900.

From—Lieut.-Col. R. N. Campbell, I.M.S., Honorary Secretary, Local Indigenous Drugs Committee, Assam, Shillong,

To—The Honorary Secretary, Central Indigenous Drugs Committee, Calcutta.

With reference to your letter No. 128-I. D. C., dated the 16th September 1899, I have the honour to inform you that copies of Report of Proceedings of the Central Indigenous Drugs Committee, Volume I, were circulated to all the reporting officers, but none of them found it necessary to make any correction or addition.

APPENDIX LV. TO PARA. 114 OF THE REPORT.

An Indian Addendum to the British Pharmacopœia.

Conf. with pp. 59-65, 67-71, 83-90, 313-30.

No. 23-I. D. C., dated Calcutta, the 19th March 1900.

From—The Honorary Secretary, Central Indigenous Drugs Committee,

To—The Under-Secretary to the Government of India, Home (Medical) Department.

I am desired by the President and Members of the Central Indigenous Drugs Committee to address the Government of India in continuation of this Committee's letter (No. 10, dated 22nd August 1899) on the subject of the proposed Indian and Colonial Addendum to the British Pharmacopœia. *See p. 317*

2. At their meeting held on the 7th instant the Central Committee read and considered all the letters received up to date from the Provincial Committees on the above subject. I am in this connection directed to append, for the information of the Government of India, copies of the communications mentioned on the margin. It will be observed that these, for the most part, concur in the undesirableness of the publication of an Indian Addendum to the Pharmacopœia, and further if such Addendum be published, they are unanimous that this Committee's provisional list of indigenous drugs (to which reference was made in my former letter) is much to be preferred to that shown in the proposed Addendum furnished by the General Medical Council of Great Britain.

(1) Madras, No. 19, dated 1st September, and a letter dated 29th October. (In continuation of letter No. 17, of 17th August 1899. *Conf. with pp. 330-33*).
(2) Assam, No. 331, dated 24th August. (*Conf. with p. 335*).
(3) Punjab, No. 13, dated 18th September. (*Conf. with p. 335*).
(4) An endorsement from North-Western Provinces, dated 21st October. (*Conf. with p. 335*).
(5) Burma, No. 2533, dated 27th October. (*Conf. with p. 337*).

3. I am to invite the attention of the Government of India to the fact that replies have not as yet been received from the Bombay, Bengal and Central Provinces' Provincial Committees, and to add that in consequence the Central Committee are not even now in a position to furnish the full particulars called for by the Government of India's letter No. 381, dated the 6th March 1899. *Conf. with pp. 337-39.*

APPENDIX LV.

4 In submitting the Madras Committee's letter dated 29th October I am to desire the special attention of the Government of India to the reference there made to what for convenience may be called a second Drugs Committee which would appear to be at present sitting in Madras, in addition to that authorized by the Government of India's Resolution No. $\frac{\text{Medical}}{643\text{-}661}$, dated 31st July 1896. So far as is known to the Central Committee, the history of that second Madras Committee would appear to be as follows :—On the 12th of February 1894, the Secretary to the Indian Pharmacopœia Committee (then sitting in Calcutta) addressed "a demi-official letter" to Colonel W. Price, Principal of the Medical College. That letter was, "by a resolution of the College Council, referred for favour of action thereon to the Professor of Materia Medica and the Lecturer on Botany in the College." Their reply to that demi-official letter was the report of the Madras so-called Committee. The above facts have been derived from the Report of the Pharmacopœia Committee of 1894, furnished for the information of this Committee under cover of your letter No. 755, dated 4th May 1899.

Conf. with pp 163-67

See p. 316

It will be seen from the letter of the 29th October that the members of the second Madras Committee do not consider that their duties terminated with the submission of their report. On the contrary they appear to have been resuscitated as a Committee and now ask the Central Indigenous Drugs Committee "what is the connection between these two Committees? Are they supposed to be working together and have they the same object in view?"

The Central Indigenous Drugs Committee have desired me to reply to our Madras Committee that since this Committee know nothing of the existence of a second Madras Committee, the points raised would be referred to the Government of India for decision and orders.

5 I am also requested to submit, for the information of the Government of India, the appended passage from a Report of progress with the Indian and Colonial Addendum that seem to have been prepared by Professor Attfield and which has recently reached this Committee from England.

It will be seen that reference is apparently made to the Madras second Committee, and further that Lieutenant-Colonel H. St. Clare Carruthers would appear to have been recently associated with the two original members, in fact that they have in some way been formally constituted into a Committee.

In connection with the above my Committee still further desire me to submit, for the information of the Government of India the following

opinions and Resolutions that have been recorded in their Proceedings of the 7th instant :—

Read—from para. 114 (10) to 114 (15) both inclusive, pages 87-90.

6. I am to add in conclusion that the Central Indigenous Drugs Committee intend submitting to the Government of India at an early date a proposal for the complete revision and reconstitution of the Provincial Committees. Meantime the issues raised in the Resolution contained in the above passages from their Proceedings of the 7th instant, seem to the President and Members of the Central Indigenous Drugs Committee of such urgency and importance that they would crave to be favoured with the views and wishes of the Government of India, and, if deemed necessary, by the Government of India issuing specific orders on the points embraced, more especially by para 114, section 11 and section 14.

APPENDIX LVI.

Present Position and Future of the Central and Provincial Indigenous Drugs Committees.

No. 27-I. D. C., dated Calcutta, the 30th March 1900.

From—The Honorary Secretary, Central Indigenous Drugs Committee,

To—The Under-Secretary to the Government of India, Home (Medical) Department, Simla.

In continuation of this office letter No. 23-I. D. C., of the 19th instant, I am directed by the President and Members of the Central Indigenous Drugs Committee to invite you to be so good as to place before the Government of India the appended extracts from the Proceedings of their last meeting. It will be seen that these paragraphs deal with the subject of the Provincial Committees appointed by Resolution of the Government of India, No. $\frac{24 \text{ Medical}}{793\text{-}809}$, dated 31st October 1895.

2. The Central Committee are most reluctantly constrained to admit that the system of Provincial Committees, of which they had hoped so much, has proved a signal failure, and they accordingly recommend that the Provincial Committees be forthwith dissolved. The grounds for this recommendation may be stated briefly :—

(*a*) The very imperfect (or rather the entire absence of any) serious response elicited from the Provincial Committees to whom of necessity had to be committed all the practical work, *viz.*, the task of conducting clinical investigations and of reporting the results. Without such returns the Central Committee are totally unable to fulfil the duties entrusted to them by the Government of India.

(*b*) The Provincial Committees have been found to be far too impersonal for any satisfactory work to be expected of them.

(*c*) The members of the Provincial Committees (as presently constituted) are for the most part dispersed all over the provinces they represent. They are accordingly never able to meet together. An Honorary Secretary circulates papers, but it is no one's special duty to take up

 CORRESPONDENCE WITH GOVERNMENT.

the enquiries. The burden falls on the Honorary Secretary, who, in most cases, is a junior officer and very possibly not himself in a position to institute any special investigations.

3 From these and other considerations of a like nature the Central Committee have had forced on them the conviction that some less cumbersome and more personal system of work has become imperatively necessary, if practical results are to be looked for, from the enquiry into the Indigenous Drugs of India. In this connection the Members of this Committee would desire that the remarks recorded from the Proceedings of the Madras Committee should be read by the Government of India These will be found under paragraph 121 of the appended papers. So also the observations made by the President of the Bombay Committee should be consulted See p 101 These will be found further on in the same paragraph Colonel Parker, it will be seen, anticipated the very state of affairs which both the Central and Madras Committees, after a fair trial of the existing arrangements, have discovered to have been actually brought about

4 The Central Committee have accordingly desired me to place before the Government of India their conviction that a more satisfactory course would be to select a short list of hospitals and to issue instructions to the officers in charge of these to give the various enquiries submitted to them their special and personal consideration

Should the Government of India find themselves able to concur with the Central Committee, the Provincial Governments might be addressed on the desirability of their substituting for Provincial Committees one or two officers in certain important towns It was for example thought by the Members of this Committee, that in the case of Bengal it would suffice were the two physicians in the Medical College Hospital, Calcutta and the Resident Physician in that Hospital entrusted with the investigations for that province With other large towns, such as Bombay, Madras, Lahore and Rangoon, it was believed that corresponding officers might easily be nominated by the local authorities, provided it was made known that the Government of India laid stress on the desirability of such nominations being actually made

5 I am also desired to inform the Government of India that it was resolved by the Central Committee that it was desirable that steps should be taken to secure the co-operation of the Chemical Examiners and Medical Store-keepers in the various provinces These officers would simply have to be informed that, should their co-operation on any particular enquiry be desired, they would be expected to give their careful consideration to whatever might be submitted to them for opinion or

CORRESPONDENCE WITH GOVERNMENT.

investigation. Further, I am desired to suggest that, in the case of Calcutta, the Chemical Examiner to the Government of Bengal and Medical Storekeeper in the Bengal Command should be *ex-officio* members of the Central Committee.

6. Lastly, I am to inform the Government of India that it was resolved that should the Government concur in the above-mentioned recommendation to dissolve all the Provincial Committees and to substitute individual investigators, it might perhaps be deemed desirable that this Committee should henceforth be known simply as the "Indian Indigenous Drugs Committee" in place of being designated the "Central Indigenous Drugs Committee."

No. 930, dated Simla, the 19th May 1900.

From—J. P. HEWETT, Esq., C.S.I., C.I.E., Secretary to the Government of India, Home Department,

To—GEORGE WATT, Esq., M.B., C.M., C.I.E., Reporter on Economic Products to the Government of India, and Honorary Secretary, Central Indigenous Drugs Committee.

I am directed to reply to your letter No. 23-I. D. C. of 19th March 1900. In compliance with the request contained in Mr. Nathan's letter No. 381, dated the 6th March 1899, you forward communications received from certain of the Provincial Committees working in subordination to the Central Indigenous Drugs Committee, containing their criticisms and suggestions upon the proposed Indian Addendum to the *British Pharmacopæia* of 1898. The Government of India notice that the replies of the Provincial Committees are not yet complete, but that they, for the most part, concur in deprecating the issue of any Indian Addendum to the *British Pharmacopæia*.

You further forward a letter from Major F. J. Crawford to the address of the President of the Madras Branch, Indigenous Drugs Committee. In this letter allusion is made to a Committee of 1894 (also described in the body of your letter as the second Madras Committee) and a variety of questions are asked, all of which are based on an uncertainty as to the relations which are to exist between this "1894 Committee" and the Central Indigenous Drugs Committee. This Madras Committee appears to have been in direct communication with the General Medical Council in England, and with reference to the inquiries of Major Crawford's letter your Central Committee has, in its meeting of the 7th March, passed resolutions and recorded opinions to the effect that the existence of this second Madras Committee, in addition to the Madras Provincial Branch of

the Central Indigenous Drugs Committee, constitutes an impossible and useless state of affairs, and further that direct communication on the subject of the Addendum between the British Medical Council and any individuals or bodies (other than the Central Indigenous Drugs Committee) should, for so long a time as the orders of the Home Department letter of March 1899 remain in force, be absolutely prohibited.

The origin of the Committee of 1894 appears to be as indicated in paragraph 4 of your letter. The General Council of Medical Education and Registration of the United Kingdom first invited the assistance of the Government of India in the preparation of what has now become the draft Addendum to the *British Pharmacopœia* in 1893, and in furtherance of the objects of the Council a Committee of three members, styled the Pharmacopœia Committee, was formed in India under the orders of Government. The Pharmacopœia Committee having incidentally consulted the Medical College, Madras, the latter institution appointed a Committee consisting of Major Crawford and Mr. Hollingsworth to draw up the necessary reply. It is this Committee which is now variously alluded to as the Committee of 1894 or the second Madras Committee. The Pharmacopœia Committee, which was the cause of the existence of this Committee, itself ceased to exist on the submission of its final report in November 1894. This being so, the Madras Committee is entirely without any status conferred directly or indirectly by Government subsequent to that date, and its later proceedings in adding an additional member to its number and communicating direct with the British Medical Council and Professor Attfield, though doubtless conducted in perfect good faith, are quite without any Government authority.

In these circumstances the Government of India agree with you that its continued independent existence is undesirable and should cease, and they are also of opinion that direct communication with the General Medical Council or Professor Attfield should be conducted solely through the Government of India.

The Government of India will, I am to say, take steps to have Major Crawford at once informed to this effect by the Government of Madras.

CORRESPONDENCE WITH GOVERNMENT.

APPENDIX LVII.

The following returns from the Central Provinces have been received too late to admit of incorporation with the series given on pages 387-481:—

No. 5-I.D., dated the 11th August 1900.

From—L. N. CHOUDHURI, Honorary Secretary, Indigenous Drugs Committee, Central Provinces, Balaghat,

To—The Honorary Secretary, Central Committee, Calcutta.

I have the honour to submit a digest from the reports, received from the Civil Surgeons of Nagpur, Jubbalpur, Bilaspore, Raipur, Narsinghpur, Bhandara and Hoshangabad, on the action of the drugs supplied to them for experiment. The Civil Surgeon of Wardha reports (received on the 21st June 1900 after several reminders), that the drugs were not tried as they were destroyed by an accidental fire in the Dispensary.

I regret very much the delay in submitting the report.

FORM No. V.

CENTRAL PROVINCES.

Record of results of observations.

ANTISPASMODICS.	
CARMINATIVES.	
A. Name of Drug—	Adhatoda Vasica.
B. Action—	
I. On the *Voluntary* Muscular system—	
II. On the *Involuntary* Muscular system—	
(*a*) Paralyse Motor Centres (*e.g.*, Calabar Bean).	
(*b*) Depress all vital functions (*e.g.*, Tobacco, Lobelia).	
(*c*) Stimulate muscular fibres of intestine and expel gas (*e.g.*, Cajeput).	
(*d*) Relax bronchial spasm (*e.g.*, Belladonna.)	Yes; to a marked extent, a very effective antispasmodic expectorant.
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	ʒ ss. ʒ i in water, 3 times a day.
E. Remarks—	Civil Surgeon, Jubbalpur, tried it in Incipient Phthisis with marked effect. It was no good in Asthma.
F. Signature and Designation of Reporting Officer, also Date—	L. N. CHOUDHURI, *Honorary Secretary, Indigenous Drugs Committee, Central Provinces.* *The 11th August 1900.*

CLINICAL RETURNS

Alstonia.

APPENDIX LVII.

FORM No. IV.

CENTRAL PROVINCES.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES: ANTIPYRETICS.	
A. Name of Drug—	Alstonia scholaris.
B. Action—	
I. *Lower the body temparature in Pyrexia—*	
(*a*) Lessen heat production (thermogenesis).	
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	Four of the seven Civil Surgeons report it as such.
III. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	In doses of ʒ i-ʒ ii every 4 hours or 3 times a day.
E. Remarks—	Civil Surgeons of Nagpur, Bhandara and Raipur found it quite useless. Those who found it useful state that bowels must be cleared out first, as it does not act when they are loaded.
F. Signature and Designation of Reporting Officer, also Date—	L. N. CHOUDHURI, *Honorary Secretary, Indigenous Drugs Committee, Central Provinces.* *The 11th August 1900.*

FORM No. VI.

CENTRAL PROVINCES.

Record of results of observations.

ASTRINGENTS.	
A. Name of Drug—	Calotropis gigantea.
B. Action—	
(1) Direct intestinal constringent (*e.g.*, Tannic Acid).	Yes.
(2) Remote specific astringent and styptic, in the blood and system, arresting discharges or bleeding, *e.g.*, of uterus, lungs, etc. (*e.g.*, Gallic Acid ?).	It acts like Ipecac *minus* its nauseating and depressing effects.
(3) Act on organs excreting them, as kidneys, skin, etc.	
(4) External local action; as styptic, astringent, antiseptic, etc.	
C. Preparations used—	Powder and Tincture.
D. Method of Administration, and Doses—	Powder from 10 to 15 grains and Tincture in half drachm doses.
E. Remarks—	All the five Civil Surgeons who tried it agree. In large doses it acts as emetic.
F. Signature and Designation of Reporting Officer, also Date—	L. N. CHOUDHURI, *Honorary Secretary, Indigenous Drugs Committee, Central Provinces.* *The 11th August 1900.*

CLINICAL RETURNS

Calotropis.

APPENDIX LVII.

FORM No. II.

CENTRAL PROVINCES.

Record of results of observations.

ALTERATIVES.

A. Name of Drug—	**Calotropis gigantea.**
B. Action—on—	
(1) *Glandular system.*	
(2) *Serous membranes.*	
(3) *Mucous membranes.*	
(4) *Cutaneous tissue.*	
(5) *Anti-syphilitic.*	All the five officers who tried it report it as such. Its action is like mercury. It has no effect in infantile syphilis, *i.e.*, congenital form. Two officers have not tried it at all.
C. Preparations used—	Powder and Tincture.
D. Method of Administration, and Doses—	Powder in doses of 10 to 15 grains and Tincture in doses of ½ drachm, *t. d. s.*
E. Remarks—	Civil Surgeon of Jabalpur found it producing narcotic symptoms in doses of 30 grains of powder.
F. Signature and Designation of Reporting Officer, also Date—	L. N. CHOUDHURI, *Honorary Secretary, Indigenous Drugs Committee, Central Provinces.*

The 11th August 1900.

PARA. 115 OF THE REPORT.

CLINICAL RETURNS

Calotropis

FORM No. IX.

CENTRAL PROVINCES.

Record of results of observations.

DIAPHORETICS.

A. Name of Drug—	Calotropis gigantea.
B. Action—	
(1) Stimulant diaphoretic; stimulate sweat glands (*e.g.*, Nitrous Ether, Jaborandi).	Three of the five medical officers found it as such, but it is not a very energetic one.
(2) Depressant, or Nauseant (*e.g.*, Antimony); dilate the capillaries.	No depressant or nauseant effects were noticed.
C. Preparations used—	Powder and Tincture
D. Method of Administration, and Doses—	Half a drachm of Tincture
E. Remarks—	It produced perspiration, though not very freely, and the fever left after five days' treatment.
F. Signature and Designation of Reporting Officer, also Date—	L. N. CHOUDHURI, *Honorary Secretary, Indigenous Drugs Committee, Central Provinces.*

The 11th August 1900.

CLINICAL RETURNS

Picrorhiza.

APPENDIX LV.I.

FORM No. IV.

CENTRAL PROVINCES.

Record of results of observations.

ANTIPERIODICS.	
FEBRIFUGES : ANTIPYRETICS.	
A. Name of Drug—	**Picrorhiza Kurrooa.**
B. Action—	
I. *Lower the body temperature in Pyrexia—*	
(*a*) Lessen heat production (thermogenesis).	Yes, very mild action.
(*b*) Promote heat loss (thermolysis).	
II. *Check periodically recurring Pyrexia.*	
III. *Check periodically recurring maladies, such as Neuralgia.*	
C. Preparations used—	Tincture.
D. Method of Administration, and Doses—	ʒ i-ʒ ii doses, three times a day. In small doses as half drachm it acted as stomachic only.
E. Remarks—	Civil Surgeons of Bhandara, Jubbalpur and Raipur found it inert, simply acting as stomachic tonic.
F. Signature and Designation of Reporting Officer, also Date—	L. N. CHOUDHURI, *Honorary Secretary, Indigenous Drugs Committee, Central Provinces.*

The 11th August 1900.

PARA. 115 OF THE REPORT.

CLINICAL RETURNS:

Podophillum.

FORM No. XII.

CENTRAL PROVINCES.

Record of results of observations.

PURGATIVES.	
A. Name of Drug —	Podophillin resin.
B. Action —	
(*a*) *Drastic* (*e.g.*, Gamboge). Act powerfully; cause catarrh of mucous membrane; increase glandular secretion and peristalsis.	
(*b*) *Cathartic*:—as (*a*)—but milder (*e.g.*, Jalap).	
(*c*) *Hydragogue*—disturb osmosis; stimulate glands; increase the fluids in dejecta (*e.g.*, Elaterium).	
(*d*) *Simple purgative* (*e.g.*, Senna); actively increase peristalsis, and empty contents of intestine.	
(*e*) *Laxative or Aperient*; increase peristalsis moderately (*e.g.*, Rhubarb, cascara).	
(*f*) *Cholagogue*:- Stimulate the liver; increase bile in stools (*e.g.*, Euonymin Podophyllin).	A very good and effective cholagogue, and a good substitute for English drug.
C. Preparations used —	In the form of pill with Ext. gentian.
D. Method of Administration, and Doses —	In $\frac{1}{4}$ to 1 grain doses is *not* effective, but in 2 grain doses it is an excellent cholagogue.
E. Remarks —	
F. Signature and Designation of Reporting Officer, also Date —	L. N. CHOUDHURI, *Honorary Secretary, Indigenous Drugs Committee, Central Provinces.* *The 11th August 1900.*

APPENDIX LVIII.

Nos. 265—277.

Extract from the Proceedings of the Government of India, in the Home Department (Medical),—under date, Calcutta, the 1st March 1901.

READ—

Home Department Resolution No. $\frac{24\text{-Medical}}{793-809}$, dated the 31st October 1895.

Home Department Resolution No. $\frac{18\text{-Medical}}{643-661}$, dated the 31st July 1896.

See p. 492

Letter from the Honorary Secretary, Central Indigenous Drugs Committee, No. 27-I. D. O., dated the 30th March 1900.

Circular letter to Local Governments and Administrations, No. 1128—1137, dated the 14th June 1900, and replies thereto.

RESOLUTION.

By the Resolution of the 31st October 1895, the Government of India appointed a Committee to consider the question of extending, in a practical way, the use of indigenous drugs, in accordance with a recommendation of the Indian Medical Congress held in Calcutta in December 1894. The Committee were unable to report definitely on any of the specific questions referred to them by the Government of India, but made certain recommendations, having for their object the appointment, as a preliminary measure, of local Committees armed with certain powers, who would be in a position to institute inquiries and report results to the Central Committee. Accordingly in the Resolution of the 31st July 1896, Local Governments and Administrations were requested to assist in carrying out the scheme sketched by the Central Committee by appointing local Committees as proposed.

2. In their letter of the 30th March 1900, the Central Indigenous Drugs Committee reported that they were constrained to admit that experience of its working had revealed defects in the system of Provincial Committees as first constituted and they recommended that the Provincial Committees should be replaced by one or more selected physicians in important towns who would be required to give the various inquiries entrusted to them their special and personal consideration. The Government of India agreed in the main with the conclusions and suggestions of the Central Committee, but were inclined to the opinion that the investigations should be restricted to Calcutta,

TO PARA. 122 OF THE REPORT.

Madras, Bombay, Rangoon and Lahore, where there were large hospitals, Medical Store-keepers and Chemical Examiners. The Government of India also agreed with the Central Committee as to the desirability of procuring the active co-operation of Medical Store-keepers and Chemical Examiners as regards chemical and pharmaceutical questions. Before coming to a final decision the opinions of Local Governments and Administrations were invited on the whole subject in the Home Department Circular letter of the 14th June 1900. The replies, which have now been received were generally in accord with the opinion of the Government of India.

Letter from the Government of Madras, No. 863, dated 31st August 1900.
Letter from the Government of Bombay, No. 4697, dated 5th September 1900.
Letter from the Government of Bengal, No. 1258-T. M., dated 7th July 1900.
Letter from the Government of the North-Western Provinces and Oudh, No. 2314, dated 1st October 1900.
Letter from the Government of the Panjab, No. 737-S., dated 31st July 1900.
Letter from the Government of Burma, No. 464-5X—31, dated 14th August 1900.

3. The Governor General in Council is now pleased to direct that the Provincial Committees referred to above should be regarded as abolished, and that in their place the officers named by the Local Governments in the marginally-noted letters be entrusted with the further pursuit of these enquiries. The central body will now be styled the Indigenous Drugs Committee.

The Government of India desire that every encouragement should be given by the Local Governments and Administrations to procure an increased number of volunteer investigators in each Province who are willing either to assist the Indigenous Drugs Committee on original lines or by investigations of any particular drug, and with this object the attention of Civil Surgeons should be called to the subject. The Inspectors General of Jails in each Province should also be invited to consider whether and to what extent trials of indigenous drugs might be undertaken at the jails.

4. The selection and issue of drugs for investigation will be left with the Indigenous Drugs Committee, which will exercise a general control over the whole scheme of future investigations.

ORDER.—Ordered, that a copy of this Resolution be forwarded to Local Governments and Administrations for information and guidance, to the Director General, Indian Medical Service, and to the Indigenous Drugs Committee.

(True Extract.)

J. P. HEWETT,

Secretary to the Government of India

INDEX.

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G. I. C. P. O.—No. 69 H. D.—3-8-1901—550.